

SEDGWICK COUNTY, KANSAS
UTILITY EASEMENT

THIS AGREEMENT made and entered into this 3rd day of December, 1993, by and between Downing Development, L.L.C., of Sedgwick County, State of Kansas party of the first part, and the Board of County Commissioners of Sedgwick County, Kansas, acting for said County, party of the second part

WITNESSETH, whereas for the proper construction, maintenance and repairing of sewers and all other public utilities according to plans and specifications now on file in the office of the County Engineer of Sedgwick County, Kansas, upon land owned by party of the first part and described as follows:

4MC-060 MH 041, 042, 043, 044
The east 10 feet of Lots 11, 12, 13, 14, and 15, Block 2, Belle Terre Addition, Sedgwick County, Kansas.

EASEMENT FOR SANITARY SEWER

THIS EASEMENT FOR SANITARY SEWER executed and delivered to the Board of County Commissioners of Sedgwick County, Kansas, acting as the Governing Body of the Sewer District (hereinafter, "County") by Downing Development Company, L.L.C. (hereinafter, "Owner")

WITNESSETH: 4MC-060 (No Film/Pa #)

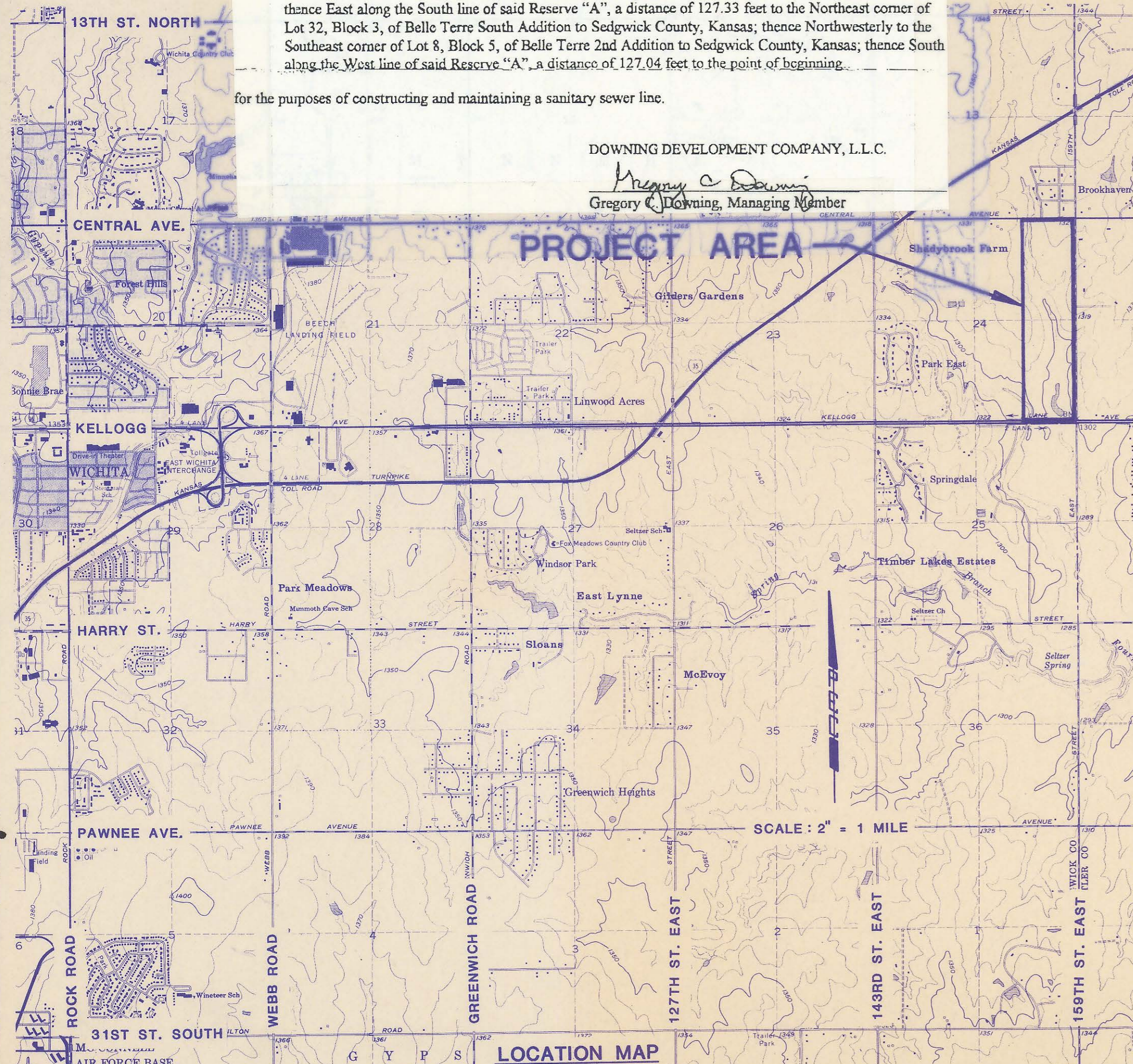
That for and in consideration of the sum of **One Dollar** \$1.00, and other good and valuable consideration, the receipt of which is hereby acknowledged, Owner hereby grants, bargains, sells and conveys to County a permanent easement in, over, across and upon the following-described premises, to wit:

A tract of land in the Southwest corner of Reserve "A" of Estates at Belle Terre 2nd Addition to Sedgwick County, Kansas, described as follows: Beginning at the Southwest Corner of said Reserve "A"; thence East along the South line of said Reserve "A", a distance of 127.33 feet to the Northeast corner of Lot 32, Block 3, of Belle Terre South Addition to Sedgwick County, Kansas; thence Northwesterly to the Southeast corner of Lot 8, Block 5, of Belle Terre 2nd Addition to Sedgwick County, Kansas; thence South along the West line of said Reserve "A", a distance of 127.04 feet to the point of beginning.

for the purposes of constructing and maintaining a sanitary sewer line.

DOWNING DEVELOPMENT COMPANY, L.L.C.

Gregory C. Downing, Managing Member



4MC-060

FOUR MILE CREEK 4MC-060

CONSTRUCTION PLANS FOR A SANITARY SEWER MAIN M1B

IN THE BROOKHAVEN JOINT SEWER DISTRICT

Project No. 34-81051-6-024 JANUARY, 1983

APPROVED:

David C. Spears
DAVID C. SPEARS, P.E.
DIRECTOR OF PUBLIC SERVICES/COUNTY ENGINEER
DATE: 5/6/93

APPROVED:

Walt C. Johnson
CHAIRMAN, BOARD OF COUNTY COMMISSIONERS
DATE:

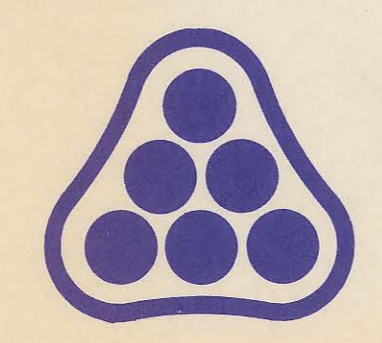
FILED IN THE OFFICE OF
THE SEDGWICK COUNTY CLERK
Susan J. Ricketts-Poor
COUNTY CLERK
DATE: 5-10-93

INDEX OF SHEETS

- SHEET NO. 1 TITLE SHEET
- SHEET NO. 2 KEY MAP
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- SHEET NO. 4 BASELINE KEY MAP
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- SHEET NO. 7-13 PLAN/PROFILE
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- SHEET NO. 15 CAST IN PLACE MANHOLE DETAILS
- SHEET NO. 16 BACKFILL DETAILS

RECORD DRAWING
PROJ. ENG. 11-27-94 DATE
RES. ENG. DATE

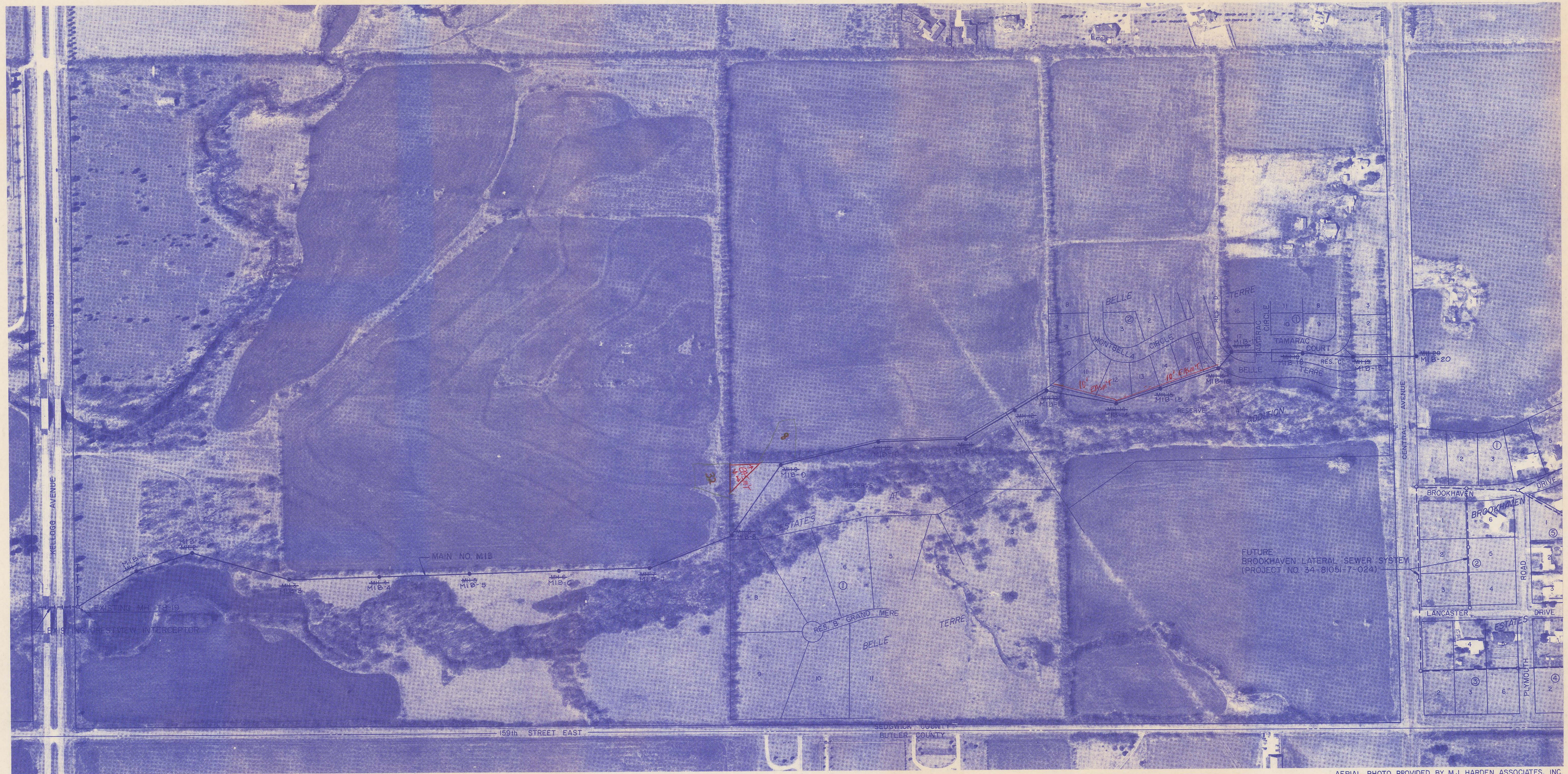
UPDATED PER CURRENT STANDARDS 3/93



PROFESSIONAL ENGINEERING CONSULTANTS, P.A.

WICHITA, KANSAS





AERIAL PHOTO PROVIDED BY M.J. HARDEN ASSOCIATES, INC. FLOWN MARCH, 1981

SCHEDULE OF SHEETS			
MAIN NO.	STATION TO STATION	MANHOLES	SHEET NO.
1	00+00.00 to 8+80.43	Exist MH, 1 thru 3	7
1	08+80.43 to 16+13.63	3 thru 5	8
1	16+13.63 to 26+48.46	5 thru 8	9
1	26+48.46 to 33+77.60	8 thru 10	10
1	33+77.60 to 41+03.52	10 thru 13	11
1	41+03.52 to 48+89.87	13 thru 17	12
1	48+89.87 to 56+14.67	17 thru 20	13

CONSTRUCTION SEQUENCING

THE CONTRACTOR SHALL SUBMIT HIS PROPOSED CONSTRUCTION SCHEDULE TO THE ENGINEER FOR APPROVAL AT LEAST 10 DAYS PRIOR TO THE NOTICE TO PROCEED. THE CONTRACTOR'S PROPOSED SCHEDULE SHALL INCLUDE, BUT SHALL NOT NECESSARILY BE LIMITED TO THE FOLLOWING ITEMS:

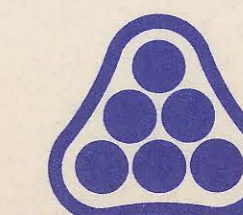
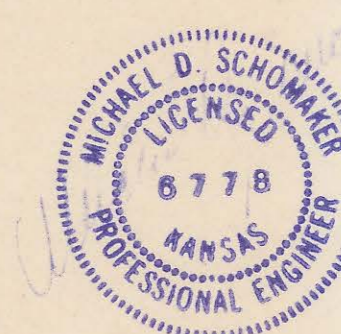
1. CONSTRUCT SANITARY SEWER MAIN BETWEEN MH 13 AND MH 20.
2. CONSTRUCT SANITARY SEWER MAIN BETWEEN EXISTING TB-19 AND MH 13.
3. SITE RESTORATION.

SEE SHEET NO. 3 FOR GENERAL NOTES



1" = 200'

- LEGEND**
- PROPOSED MAIN
 - EXISTING TRUNK SEWER
 - PROPOSED LATERALS



1	Revised Alignment	RJ	3/83
No.	Revision	By	Date
SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER			
KEY MAP SANITARY SEWER MAIN BROOKHAVEN JOINT SEWER DISTRICT PROFESSIONAL ENGINEERING CONSULTANTS, P.A. ENGINEERS WICHITA, KANSAS			
Designed by	DLM, M.D.S., T.S.	Job No.	81051-G
Drawn by	G/M	Date	Jan. 1983
		Sht.	2 of 10

GRASS PLANTING

THE CONTRACTOR SHALL PLANT GRASS ON ALL AREAS DISTURBED BY CONSTRUCTION, EXCEPT CULTIVATED AREAS, FROM SEWER STATION 0+00.00 (EXISTING MH TB-19) TO SEWER STATION 26+48.46 (MH 8) AND FROM SEWER STATION 55+00 (SOUTH R/W LINE OF CENTRAL) TO SEWER STATION 56+14.67 (MH 20). SURFACES SHALL BE PREPARED, FERTILIZED, AND PLANTED IN ACCORDANCE WITH THE SPECIFICATIONS AND AT THE APPLICATION RATES GIVEN BELOW. THE COST FOR SEEDING, SPRIGGING, AND SODDING SHALL BE SUBSIDIARY TO THE PRICE BID FOR "SITE CLEARING AND RESTORATION".

ROAD RIGHTS-OF-WAY AND OTHER PUBLICLY OWNED AREAS SHALL BE SEEDED AS DIRECTED BELOW UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

APPLICATION RATES:

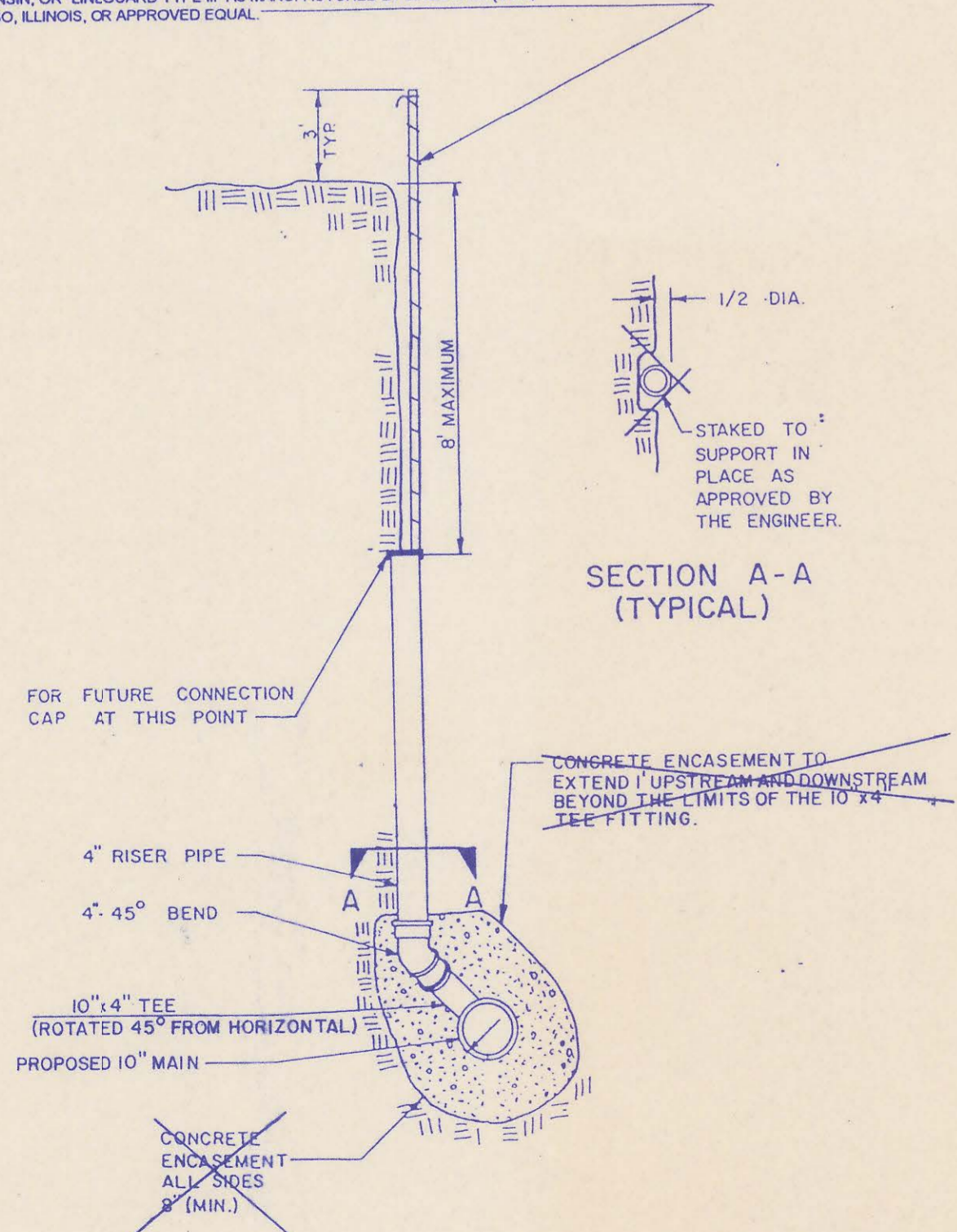
1. SEED: K-31 FESCUE @ 8 LBS PER 1,000 SQUARE FEET
2. MULCH (IF REQUIRED): 90 LBS PER 1,000 S.F.
3. FERTILIZER: NITROGEN @ 1 LB PER 1,000 S.F.
PHOSPHOROUS @ 2 LBS PER 1,000 S.F.
POTASSIUM @ 1 LB PER 1,000 S.F.

GRASS ON PRIVATELY-OWNED AREAS (INCLUDING TEMPORARY AND PERMANENT EASEMENTS) SHALL BE REPLACED IN KIND IN ACCORDANCE WITH THE INFORMATION GIVEN BELOW OR AS DIRECTED BY THE ENGINEER.

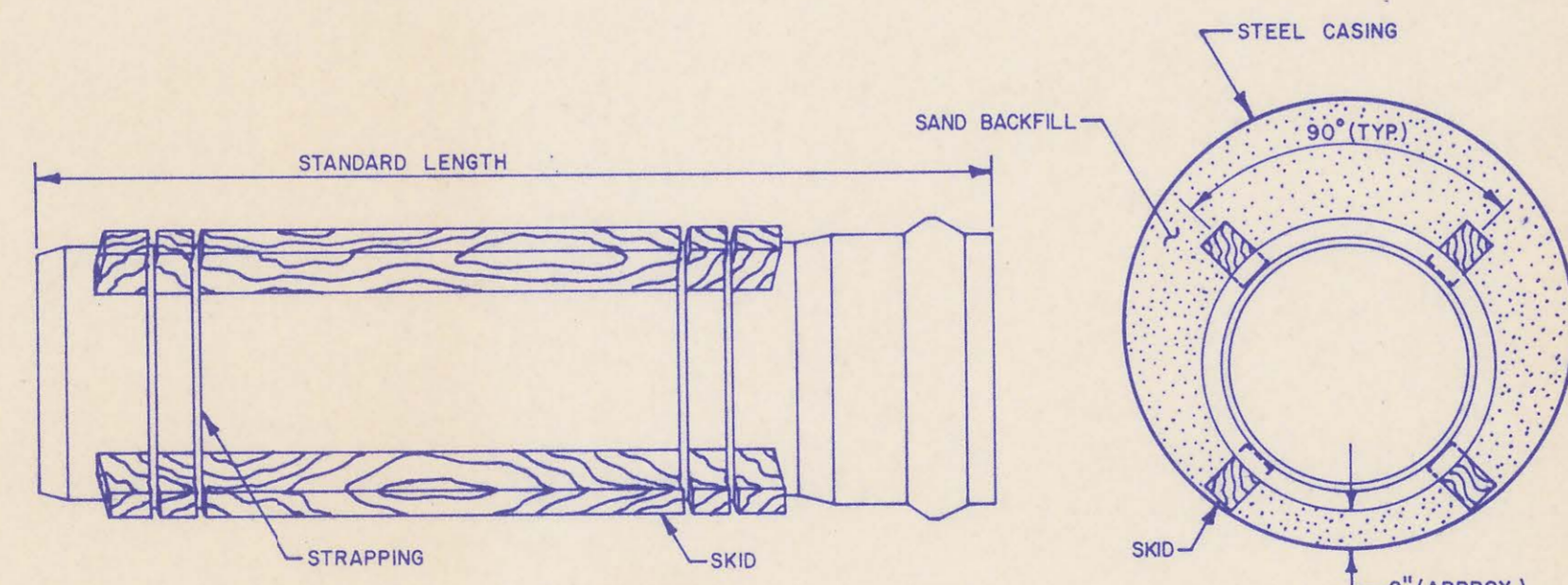
TYPE OF GRASS	PLANTING TIME	SEED APPLICATION	FERTILIZER*
BLUEGRASS (WINDSOR, KENTUCKY, ETC.)	FALL	3 LBS/1,000 S.F.	8 LBS/1,000 S.F.*
TALL FESCUE (K-31)	SPRING OR FALL	8 LBS/1,000 S.F.	8 LBS/1,000 S.F.*
BERMUDA	SPRING	SPRIGS OR SOD (SPECIFICATIONS)	8 LBS/1,000 S.F.*
ZOYSIA	SPRING	SPRIGS OR SOD (SPECIFICATIONS)	8 LBS/1,000 S.F.*

*FERTILIZER APPLICATION RATES ARE BASED ON ACTUAL LBS OF PHOSPHOROUS APPLIED PER 1,000 S.F. FERTILIZER SHALL BE 12-24-12 OR OTHER HIGH PHOSPHOROUS TYPE AS APPROVED BY THE ENGINEER. (EXAMPLE: TO APPLY 2 LBS OF PHOSPHOROUS USING A 12-24-12 FERTILIZER, 8 LBS OF FERTILIZER WOULD BE REQUIRED.)

LOCATION OF THE RISER PIPE SHALL BE MARKED BY FASTENING 2-INCH WIDE METALLIC DETECTABLE TAPE TO THE END OF THE PIPE AND WRAPPED AROUND 1" PVC PIPE EXTENDING VERTICALLY FROM THE END OF THE RISER PIPE TO 3 FEET ABOVE THE GROUND SURFACE. METALLIC DETECTABLE TAPE SHALL BE "MagNetec" AS MANUFACTURED BY THOR ENTERPRISES, INC., WATERLOO, WISCONSIN, OR "LINEGUARD" TYPE IF AS MANUFACTURED BY LINEGUARD, INC., CHICAGO, ILLINOIS, OR APPROVED EQUAL.



**10" x 4" TEE
w/4" VERTICAL RISER PIPE**



STEEL ENCASEMENT DETAIL

GENERAL NOTES

1. ALL ELEVATIONS SHOWN ARE USGS DATUM.
2. AT LEAST 72 HOURS PRIOR TO BEGINNING ANY EXCAVATION (EXCLUDING WEEKENDS AND HOLIDAYS), THE CONTRACTOR SHALL CONTACT THE KANSAS ONE-CALL SYSTEM, A UTILITY LOCATION SERVICE, AT 887-2470 TO REQUEST THE FOLLOWING UTILITY COMPANIES TO LOCATE ANY EXISTING LINES WITHIN THE PROJECT AREA: MULTIMEDIA CABLE TV, WICHITA WATER, SOUTHWESTERN BELL TELEPHONE, K G & E GAS, AND K G & E ELECTRIC.
3. THE BURIED UTILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE LOCATIONS ONLY. IT SHOULD BE NOTED THAT OTHER BURIED LINES AND CABLES MAY EXIST WHICH ARE NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING TRENCHING OPERATIONS TO AVOID DAMAGING THESE LINES. ANY LINES DAMAGED SHALL BE REPLACED OR REPAIRED IMMEDIATELY AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
4. AT LEAST 24 HOURS BEFORE CONNECTING NEW SEWER PIPE TO THE EXISTING SEWAGE SYSTEM, THE CONTRACTOR SHALL CONTACT THE SEDGWICK COUNTY EASTERN SEWER DISTRICT (733-0202). THE CONTRACTOR SHALL KEEP ANY CONSTRUCTION DEBRIS FROM ENTERING THE EXISTING SANITARY SEWER DURING CONSTRUCTION. TO PREVENT WATER OR DEBRIS FROM ENTERING THE EXISTING SEWER, A MECHANICAL PLUG SHALL BE INSTALLED AND MAINTAINED TO ISOLATE THE EXISTING SEWER FROM THE NEW CONSTRUCTION UNTIL THE NEW CONSTRUCTION IS CLEANED, TELEVIEWED, AND HAS BEEN ACCEPTED. THE WATER USED FOR CLEANING SHALL NOT BE ADDED TO THE FLOW OF THE EXISTING SEWER. THE CLEANING OR OTHERWISE ACCUMULATED WATER SHALL BE PUMPED OR OTHERWISE REMOVED PRIOR TO TELEVIEWING.
5. ALL MANHOLES CONSTRUCTED ON THIS PROJECT SHALL HAVE SELF-SEALING FRAMES AND SHALL BE COATED INTERNALLY WITH STRONG SEAL MS-2-A PER PROJECT SPECIFICATIONS.
6. ALL PIPE JOINTS SHALL BE LAID AND PUSHED 'FULL HOME', WITH THE BEVELED END OF THE SPIGOT MAKING FULL CONTACT WITH THE CHAMFERED AREA AT THE THROAT OF THE BELL OR SOCKET, WITH NO SEPARATION BETWEEN THEM. IF SEPARATION IS DETERMINED, THE PIPE SHALL BE EXCAVATED AND RELAID ACCORDING TO SPECIFICATIONS AT THE CONTRACTOR'S EXPENSE.
7. EXCESS EXCAVATED MATERIAL AND OTHER DEBRIS SHALL BE WASTED ON SITES TO BE PROVIDED BY THE CONTRACTOR AS APPROVED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
8. THE CONTRACTOR SHALL CONTAIN HIS OPERATIONS TO PERMIT TRAFFIC THROUGH AND ACROSS CONSTRUCTION AT EXISTING ROADWAYS AT ALL TIMES. THE CONTRACTOR SHALL ERECT WARNING SIGNS, FLASHING LIGHTS, AND BARRICADES IN COMPLIANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES TO ENSURE SAFETY AS DIRECTED IN THE GENERAL CONDITIONS. THE CONTRACTOR SHALL LIMIT THE EXTENT OF TRENCH TO REMAIN OPEN OVERNIGHT AND WEEKENDS TO LESS THAN 50 FEET.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR SHALL BE REQUIRED TO RE-ESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS. PRIOR TO START OF CONSTRUCTION THE CONTRACTOR SHALL FLAG AND REFERENCE ALL PROPERTY CORNERS THAT MAY BE DISTURBED BY CONSTRUCTION OPERATIONS, AND VERIFY THESE IN THE FIELD IN THE PRESENCE OF THE ENGINEER AND THE CONTRACTOR'S SURVEYOR. AFTER CONSTRUCTION AND BEFORE THE FINAL INSPECTION, A LETTER SIGNED AND SEALED BY THE LICENSED LAND SURVEYOR CERTIFYING REPLACEMENT OF ALL DISTURBED PROPERTY CORNERS SHALL BE SUBMITTED TO THE ENGINEER.
10. THE CONTRACTOR SHALL RESTORE ALL DITCHES, SWALES, ROAD SHOULDERS, AND BANKS TO THEIR ORIGINAL SLOPES AND GRADES. WHERE EXISTING ENTRANCE PIPE, DRAINAGE PIPE, SIGNS, FENCES, ETC., CONFLICT WITH THE PROPOSED WORK HEREIN, THEY SHALL BE REMOVED AND REPLACED OR RESET. THE REPLACEMENT OF ALL THE AFOREMENTIONED ITEMS, INCLUDING SEEDING, FERTILIZER, AND MULCHING SHALL BE CONSIDERED SUBSIDIARY TO "SITE CLEARING AND RESTORATION".
11. EASEMENTS AND RIGHTS-OF-WAY PROVIDED BY THE OWNER FOR THE PROJECT ARE SHOWN IN THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACQUISITION OF ANY ADDITIONAL TEMPORARY EASEMENTS OR RIGHTS-OF-WAY THAT HE DESIRES TO USE IN COMPLETING THE WORK.
12. POSITIVE DRAINAGE SHALL BE PROVIDED FOR ALL AREAS ON OR NEAR SPOIL AREAS. NATURAL DRAINAGE SHALL BE MAINTAINED.
13. THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL MANHOLE COVERS.
14. THE CONTRACTOR SHALL GIVE ALL PROPERTY OWNERS AND/OR TENANTS OF DEVELOPED PROPERTY ABUTTING THE CONSTRUCTION OF THIS PROJECT A MINIMUM OF 10 DAYS ADVANCE NOTICE PRIOR TO START OF CONSTRUCTION IN THE VICINITY OF THE AFFECTED PROPERTY.
15. ALL TRENCH BACKFILL SHALL BE EITHER TYPE I OR TYPE III UNLESS NOTED OTHERWISE.
16. TOP ELEVATIONS FOR MANHOLES ARE APPROXIMATE ONLY. TOP ELEVATIONS FOR MANHOLES SHALL BE SET AS FOLLOWS:
A. OUTSIDE OF TRAVELED WAYS, 0.4 FEET ABOVE FINISH GRADE.
B. PAVED TRAVELED WAYS, FLUSH WITH FINISH GRADE.
C. UNPAVED TRAVELED WAYS, AS DIRECTED BY THE ENGINEER.
17. THE CONTRACTOR SHALL ALSO CONTACT THE FOLLOWING AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION TO ADVISE THEM OF THE INTENDED WORK AND OF HIS PROPOSED SCHEDULE:

SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
4000 S. SENECA
1250 S. SENECA
WICHITA, KS 67213
MR. JIM WEBER
(316) 383-7901

WILLIAMS NATURAL GAS
4000 S. SENECA
WICHITA, KS 67217
MR. BILL HAGEMANN
(316) 524-4390

	Updated per current standards		RJ	3/23
	No.	Revision	By	Date
SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER MISCELLANEOUS DETAILS AND GENERAL NOTES SANITARY SEWER MAIN BROOKHAVEN JOINT SEWER DISTRICT PROFESSIONAL ENGINEERING CONSULTANTS, P.A. ENGINEERS WICHITA, KANSAS				
Designed by	DLM, MDS	Job No.	81051-G	Sht. 3 of 10
Drawn by		Date	Jan, 1983	

BROOKHAVEN INTERCEPTOR
SECTION CORNER TIES

SECTION 24

NORTH 1/4 CORNER
576,954.0648 N 387,813.4020 E
3/4" IRON PIPE IN THIMBLE
43.94' NNW, NAIL AND SHINER IN WEST FACE UTILITY POLE
44.75' N, NAIL AND SHINER IN EAST FACE OF EAST FENCE POST
60.23' SW, NAIL AND SHINER IN NORTHWEST FACE UTILITY POLE

CENTER
574,297.8276 N 387,851.1190 E
(CALCULATED)

SOUTH 1/4 CORNER
571,642.8813 N 387,888.8180 E
LEAD AND TACK
69.61' N, NAIL AND SHINER IN EAST FACE UTILITY POLE
104.85' SE, NAIL AND SHINER IN WEST FACE FENCE CORNER POST
100.61' SW, NAIL AND SHINER IN EAST FACE UTILITY POLE

NORTHEAST CORNER
576,997.4513 N 390,454.2600 E
BRASS CAP
58.30' NW, NAIL AND SHINER IN SOUTH-SOUTHWEST FACE UTILITY POLE
40.00' NE, NAIL AND SHINER IN SOUTH-EAST FACE UTILITY POLE
45.00' SE, NAIL AND SHINER IN NORTHEAST FACE UTILITY POLE

EAST 1/4 CORNER
574,339.9296 N 390,487.9430 E
"CHISELED "+" IN CENTER 4" X 4" CONCRETE BLOCK
(1/2" REBAR ON EACH OF ITS 4 SIDES)
30.57' ENE, NAIL AND SHINER IN WEST-NORTHWEST FACE UTILITY POLE
57.85' ENE, NAIL AND SHINER IN SOUTH FACE UTILITY POLE
31.30' WSW, CHISELED "+" IN CENTER 4" X 4" CONCRETE WITNESS POST

SOUTHEAST CORNER
571,686.4559 N 390,526.3780 E
5/8" REBAR IN THIMBLE
81.91' NW, NAIL AND SHINER IN WEST FACE UTILITY POLE
80.61' NE, NAIL AND SHINER IN SOUTHEAST FACE GUY POLE
99.61' SE, CENTER OF CONCRETE RIGHT-OF-WAY MARKER

BROOKHAVEN INTERCEPTOR
PI TIES

PI 1 571,779.4945 N 390,003.2342 E
1/2" REBAR W/CAP
54.70' NNE, 1/2" REBAR AT TOE OF SLOPE TO DIKE.
24.43' SE, NAIL AND SHINER IN EAST FACE 8' TREE
54.86' SE TO 60d NAIL IN TOP OF ORANGE WOOD POST

PI 2 572,207.6423 N 389,776.7032 E
1/2" REBAR
58.70' SW TO 60d NAIL IN TOP 24" ELM STUMP
51.10' W TO 60d NAIL IN NORTH FACE 15" ELM
38.10' NW, NAIL AND SHINER IN EAST FACE 5" OSAGE ORANGE
75' E TO EDGE OF POND

PI 3 572,512.4421 N 389,937.3725 E
1/2" REBAR
15' E TO EDGE OF POND
31.80' W, NAIL AND SHINER IN NORTH FACE 5" HACKBERRY
54.38' SSW TO 60d NAIL IN NORTHWEST FACE 15" MULBERRY
73.62' NW, NAIL AND SHINER IN S.W. FACE 6" FENCE CORNER POST

PI 4 573,093.8531 N 389,885.2525 E
1/2" REBAR
32.39' NE, NAIL AND SHINER IN NORTH FACE 18" OSAGE ORANGE
26.85' SSW, NAIL AND SHINER IN EAST FACE 8' ELM
9.08' NW, NAIL AND SHINER IN NORTH FACE 7" HACKBERRY

PI 5 573,948.9878 N 389,895.2956 E
1/2" REBAR
49.85' SW, NAIL AND SHINER IN SOUTH FACE 14" HACKBERRY
52.06' NW, NAIL AND SHINER IN SOUTH FACE 18" HACKBERRY
87.66' NNW, NAIL AND SHINER IN NORTHEAST FACE 14" HACKBERRY

PI 6 574,653.2195 N 389,464.5530 E
1/2" REBAR
95.05' NE, NAIL AND SHINER IN NORTH FACE 20" ASH
46.36' SW, NAIL AND SHINER IN S.E. FACE 24" OSAGE ORANGE
42.73' NW, NAIL AND SHINER IN N.E. FACE 18" OSAGE ORANGE

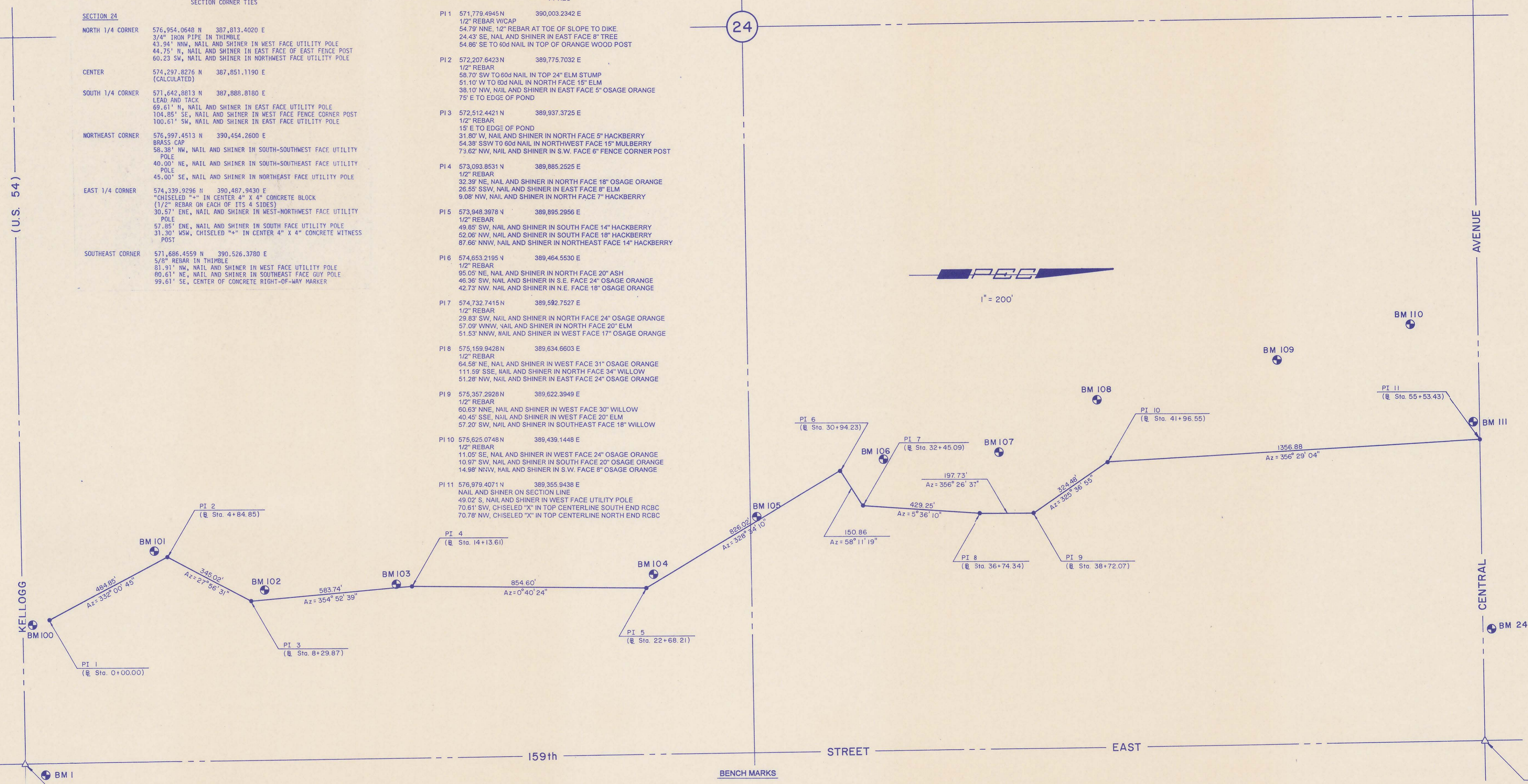
PI 7 574,732.7415 N 389,592.7527 E
1/2" REBAR
29.83' SW, NAIL AND SHINER IN NORTH FACE 24" OSAGE ORANGE
57.09' WNW, NAIL AND SHINER IN NORTH FACE 20" ELM
51.53' NNW, NAIL AND SHINER IN WEST FACE 17" OSAGE ORANGE

PI 8 575,159.9428 N 389,634.6603 E
1/2" REBAR
64.58' NE, NAIL AND SHINER IN WEST FACE 31" OSAGE ORANGE
111.59' SSE, NAIL AND SHINER IN NORTH FACE 34" WILLOW
51.28' NW, NAIL AND SHINER IN EAST FACE 24" OSAGE ORANGE

PI 9 575,357.2928 N 389,622.3949 E
1/2" REBAR
60.63' NNE, NAIL AND SHINER IN WEST FACE 30" WILLOW
40.45' SSE, NAIL AND SHINER IN WEST FACE 20" ELM
57.20' SW, NAIL AND SHINER IN SOUTHEAST FACE 18" WILLOW

PI 10 575,625.0748 N 389,438.1448 E
1/2" REBAR
11.05' SE, NAIL AND SHINER IN WEST FACE 24" OSAGE ORANGE
10.97' SW, NAIL AND SHINER IN SOUTH FACE 20" OSAGE ORANGE
14.88' NNW, NAIL AND SHINER IN S.W. FACE 8" OSAGE ORANGE

PI 11 576,979.4071 N 389,355.9438 E
NAIL AND SHINER ON SECTION LINE
49.02' S, NAIL AND SHINER IN WEST FACE UTILITY POLE
70.61' SW, CHISELED "X" IN TOP CENTERLINE SOUTH END RCBC
70.78' NW, CHISELED "X" IN TOP CENTERLINE NORTH END RCBC



BENCH MARKS

BM 100	60d NAIL IN TOP OF ORANGE POST 15' N. OF N.W. CORNER OF WESTBOUND BRIDGE US 54, SOUTH OF EXISTING MH 100, APPROX. 500' W. OF 159TH STREET EAST. ELEV. 1301.83 (MSL)	BM 106	60d STEP NAILS IN S.E. FACE 18" HEDGE TREE IN N-S TREE ROW (Sanitary Sewer Sta. 32+74, 51' Rt.) ELEV. 1311.14 (MSL)
BM 101	60d NAIL IN TOP 20" ELM STUMP (Baseline Sta. 4+55, 40' Lt.) ELEV. 1303.69 (MSL)	BM 107	60d STEP NAILS IN E. FACE 12" HACKBERRY IN N-S TREE ROW (Sanitary Sewer Sta. 37+02, 68' Rt.) ELEV. 1310.01 (MSL)
BM 102	60d STEP NAILS IN E. FACE 6" ELM (Baseline Sta. 8+80, 35' Lt.) ELEV. 1300.58 (MSL)	BM 108	60d STEP NAILS IN E. FACE 9" HACKBERRY ON N. SIDE OF E-W HEDGE ROW (Sanitary Sewer Sta. 41+62, 65' Rt.) ELEV. 1311.86 (MSL)
BM 103	RAILROAD SPIKE IN E. FACE 9" HACKBERRY IN N-S TREE ROW (Baseline Sta. 13+60, 10' Lt.) ELEV. 1303.35 (MSL)	BM 109	60d NAIL IN TOP OF 8" TREE STUMP ON N. SIDE E-W HEDGE ROW (Sanitary Sewer Sta. 48+18 (Extended Ahead), 30' Rt.) ELEV. 1315.64 (MSL)
BM 104	RAILROAD SPIKE IN E. FACE 22" HACKBERRY IN N-S TREE ROW (Baseline Sta. 23+15, 30' Lt.) ELEV. 1306.02 (MSL)	BM 110	60d STEP NAILS IN E. FACE 18" HEDGE TREE IN E-W TREE ROW (Sanitary Sewer Sta. 53+35, 50' Lt.) ELEV. 1318.95 (MSL)
BM 105	CHISELED "□" IN N.W. CORNER OF WINGWALL AT N.W. CORNER OF CONCRETE SOIL SAVER ON S. SIDE OF E-W HEDGE ROW (Sanitary Sewer Sta. 26+64, 38' Lt.) ELEV. 1309.06 (MSL)	BM 111	CHISELED "+" ON CENTER OF S. HEADWALL OF RCBC UNDER CENTRAL AVE. APPROX. 1160 FEET W. OF 159TH STREET E. ELEV. 1318.30 (MSL)



1 Verified PI ties and Benchmarks		RJ	3/93
No.	Revision	By	Date
SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER			
BASELINE KEY MAP SANITARY SEWER MAIN BROOKHAVEN JOINT SEWER DISTRICT PROFESSIONAL ENGINEERING CONSULTANTS, P.A. ENGINEERS WICHITA, KANSAS			
Designed by	DLM, MDS	Job No.	81051-G
Drawn by	GM	Date	Jan, 1983
		Sht.	4 of 10

ESTATES AT BELLE TERRE

SEDGWICK COUNTY, KANSAS.



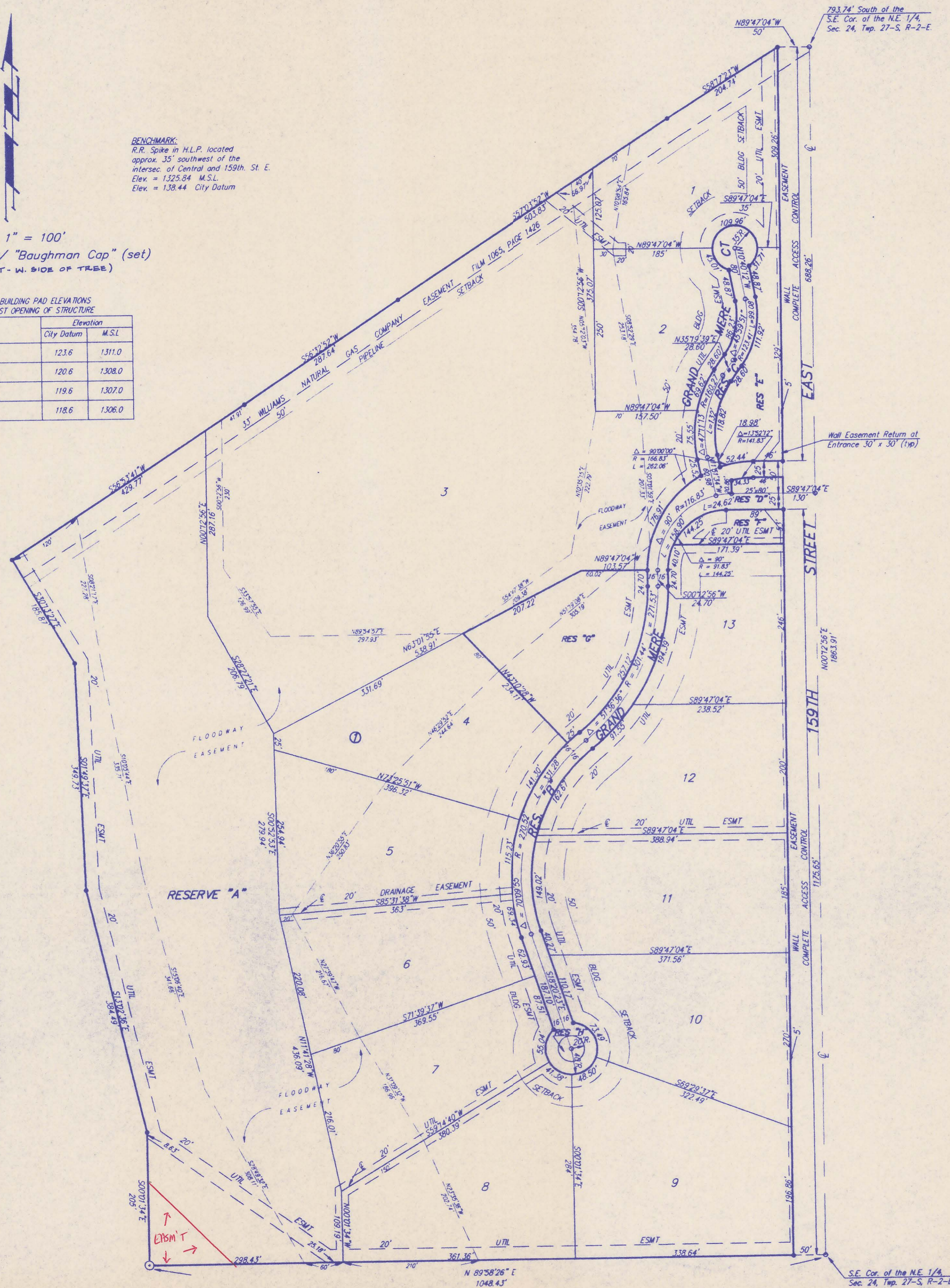
BENCHMARK:
R.R. Spike in H.L.P. located approx. 35' southwest of the intersect. of Central and 159th St. E.
Elev. = 1325.84 M.S.L.
Elev. = 138.44 City Datum

Scale: 1" = 100'

- = 1/2" Rebar w/ "Baughman Cap" (set)
- = NAIL IN CAP (SET - W. SIDE OF TREE)

MINIMUM BUILDING PAD ELEVATIONS FOR LOWEST OPENING OF STRUCTURE

Lot & Block	Elevation	
	City Datum	M.S.L.
1, 2, 3, 4, - BLK 1	123.6	1311.0
5 - BLK 1	120.6	1308.0
6 - BLK 1	119.6	1307.0
7, 8 - BLK 1	118.6	1306.0



NOTE
THE CONTRACTOR SHALL OBTAIN A RECORDED COPY OF THIS PLAT PRIOR TO BEGINNING CONSTRUCTION WITHIN THE PLATTED AREA.

No.	Revision	By	Date
SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER			
PLAT SANITARY SEWER MAIN BROOKHAVEN JOINT SEWER DISTRICT PROFESSIONAL ENGINEERING CONSULTANTS, P.A.			
ENGINEERS WICHITA, KANSAS			
Designed by	Job No. 34-23136	Shr. 5 of 16	
Drawn by	Date April 3, 1993		



BELLE TERRE ADDITION

SEDGWICK COUNTY, KANSAS.



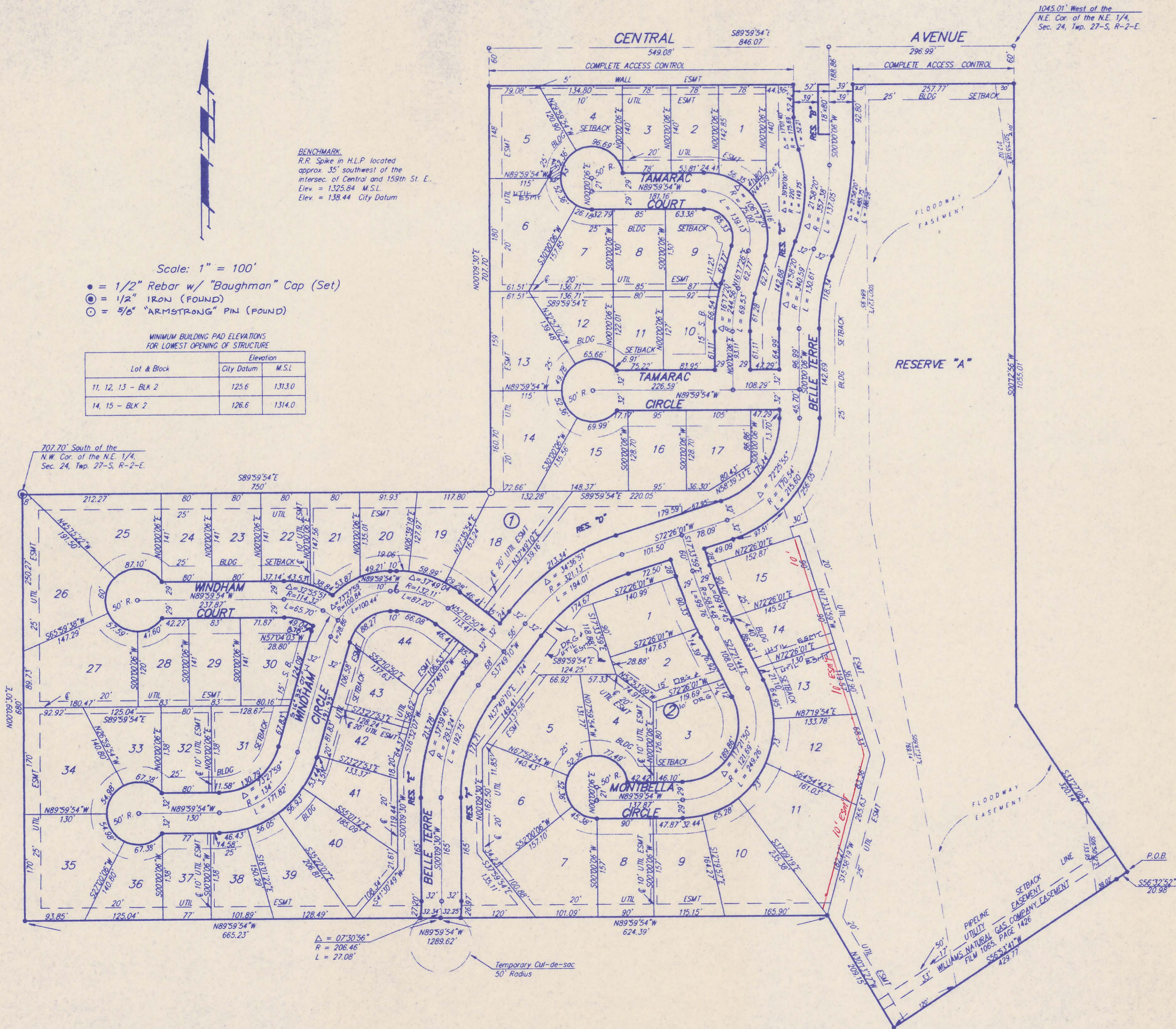
BENCHMARK
 R.R. Spike in H.L.P. located approx. 35' southwest of the intersect. of Central and 159th St. E.
 Elev. = 1325.84 M.S.L.
 Elev. = 138.44 City Datum

Scale: 1" = 100'

- = 1/2" Rebar w/ "Baughman" Cap (Set)
- ⊙ = 1/2" IRON (FOUND)
- = 5/8" ARMSTRONG PIN (FOUND)

MINIMUM BUILDING PAD ELEVATIONS FOR LOWEST OPENING OF STRUCTURE

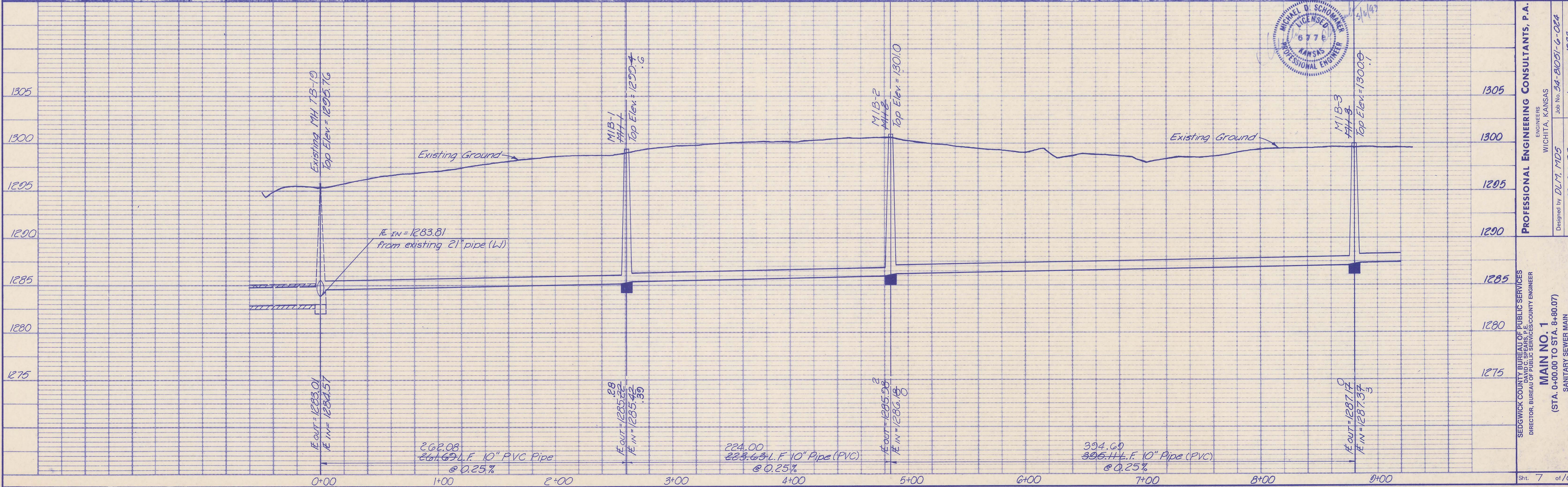
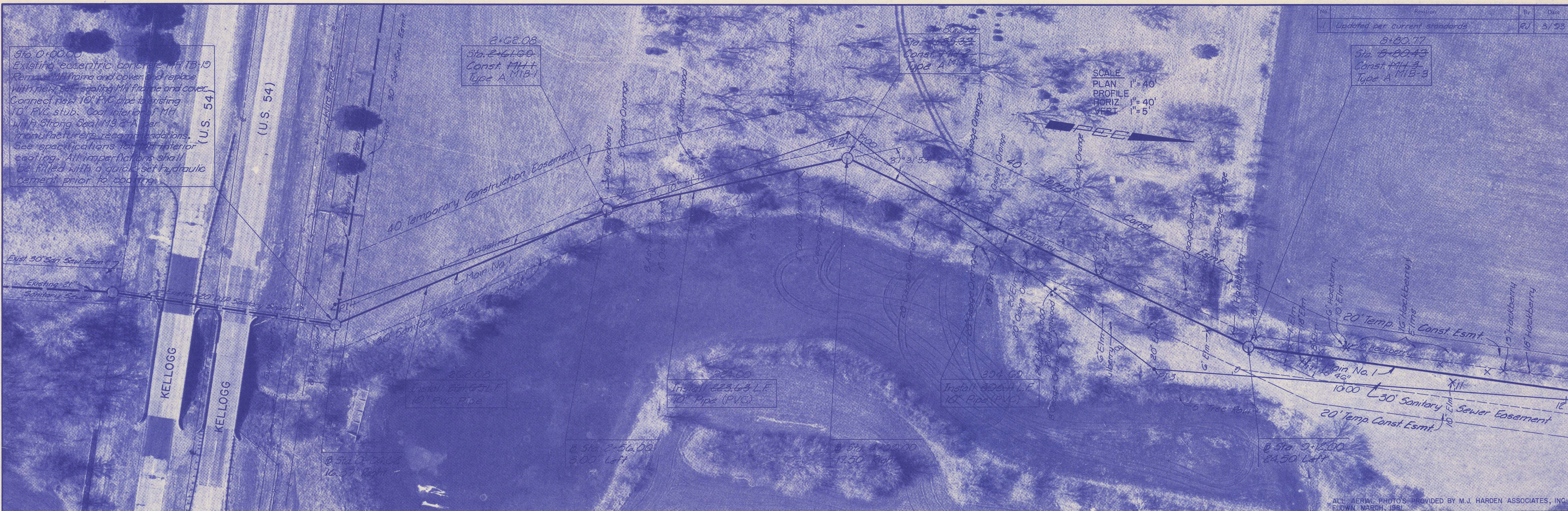
Lot & Block	Elevation	
	City Datum	M.S.L.
11, 12, 13 - BLK 2	125.6	1313.0
14, 15 - BLK 2	126.6	1314.0



NOTE
 THE CONTRACTOR SHALL OBTAIN A RECORDED COPY OF THIS PLAT PRIOR TO BEGINNING CONSTRUCTION WITHIN THE PLATTED AREA.

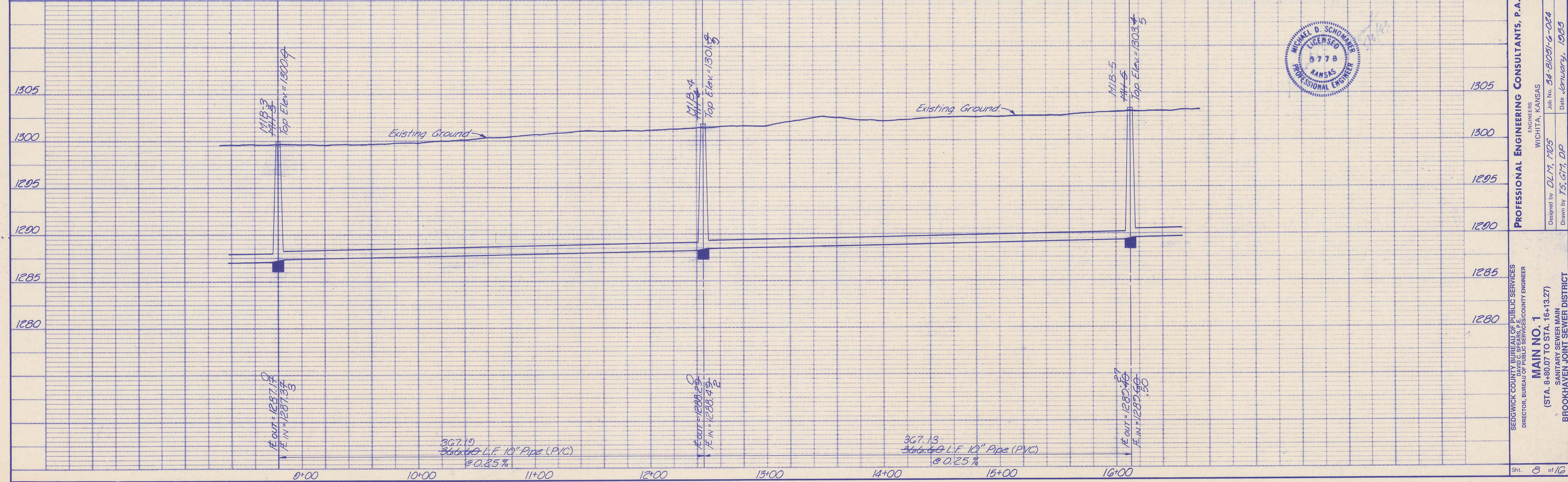
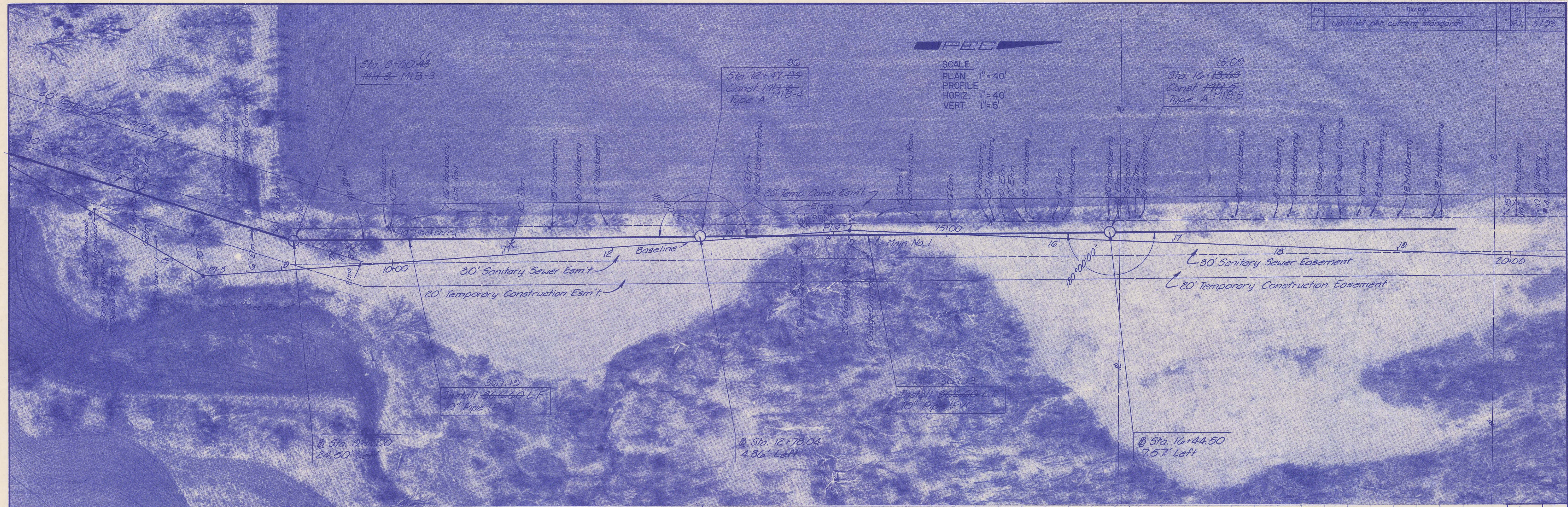
No.	Revision	By	Date
SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER			
PLAT SANITARY SEWER MAIN BROOKHAVEN JOINT SEWER DISTRICT PROFESSIONAL ENGINEERING CONSULTANTS, P.A. ENGINEERS WICHITA, KANSAS			
Designed by	Job No. 34-03136	Sht. 6 of 10	
Drawn by	Date April 3, 1993		





SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
 DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER
MAIN NO. 1
 (STA. 0+00.00 TO STA. 8+80.07)
 SANITARY SEWER MAIN
 BROOKHAVEN JOINT SEWER DISTRICT

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 ENGINEERS
 WICHITA, KANSAS
 Designed by D.L.M. MDS
 Drawn by T.S. G.M. DP
 Job No. 34-81051-6-024
 Date January, 1983

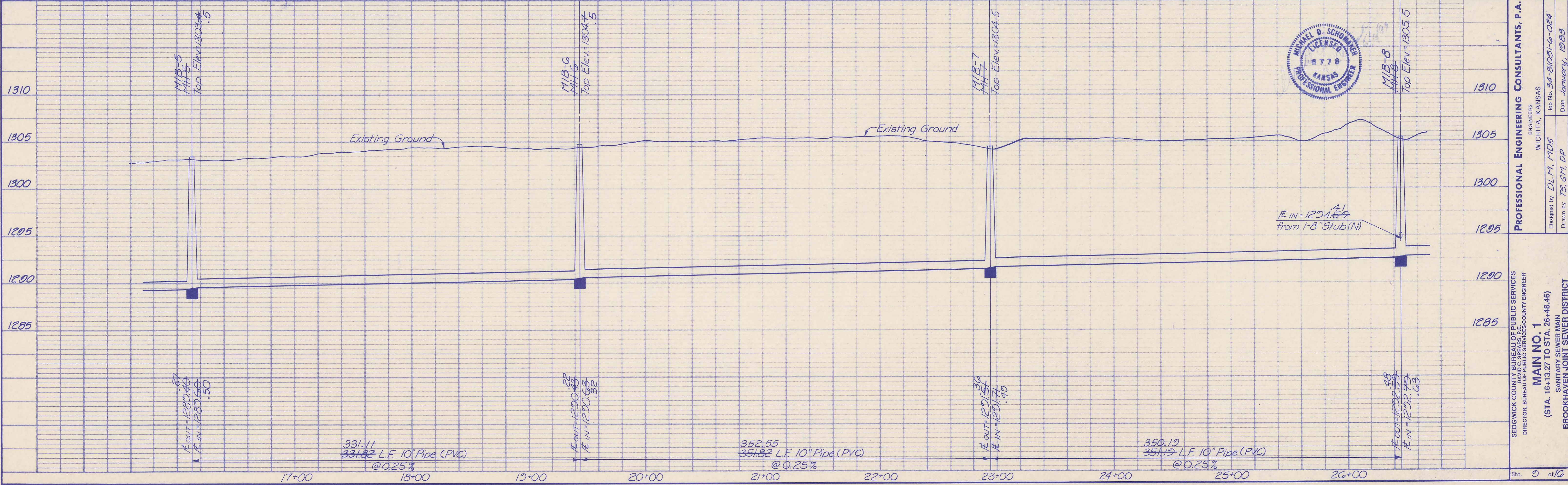
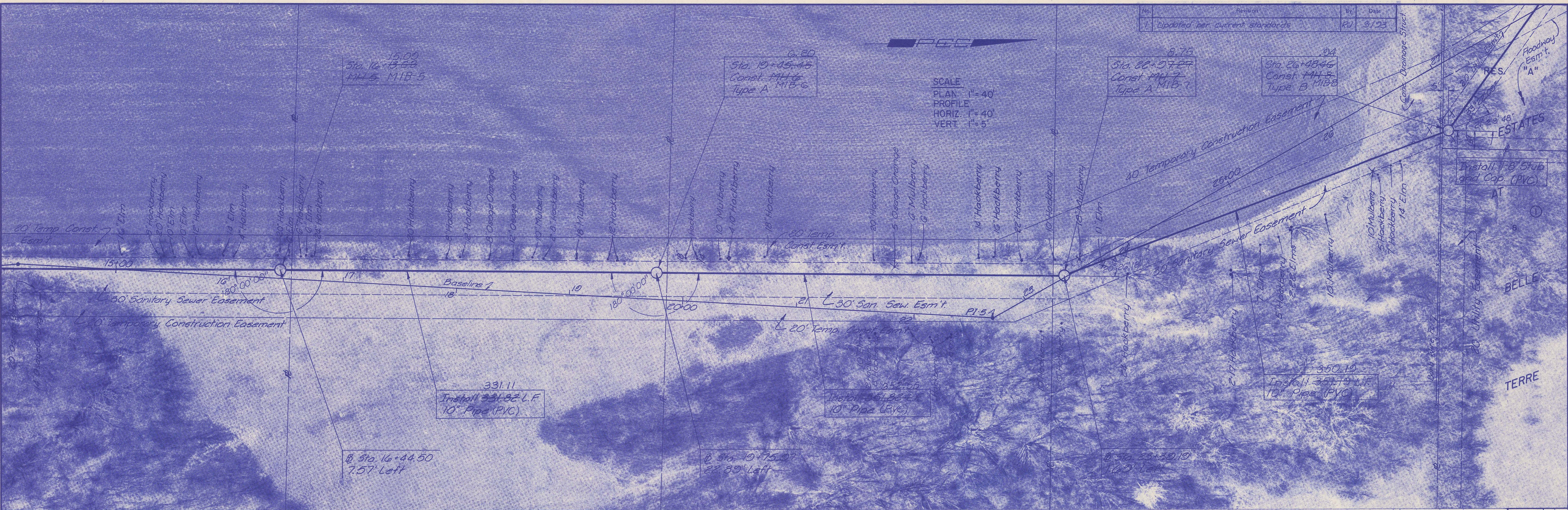


SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
 DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

MAIN NO. 1
 (STA. 8+80.07 TO STA. 16+13.27)
 SANITARY SEWER MAIN
 BROOKHAVEN JOINT SEWER DISTRICT

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 ENGINEERS
 WICHITA, KANSAS
 Job No. 34-81091-6-024
 Designed by OLM, MDS
 Drawn by TS, GM, DP
 Date January, 1993

Sht. 3 of 12

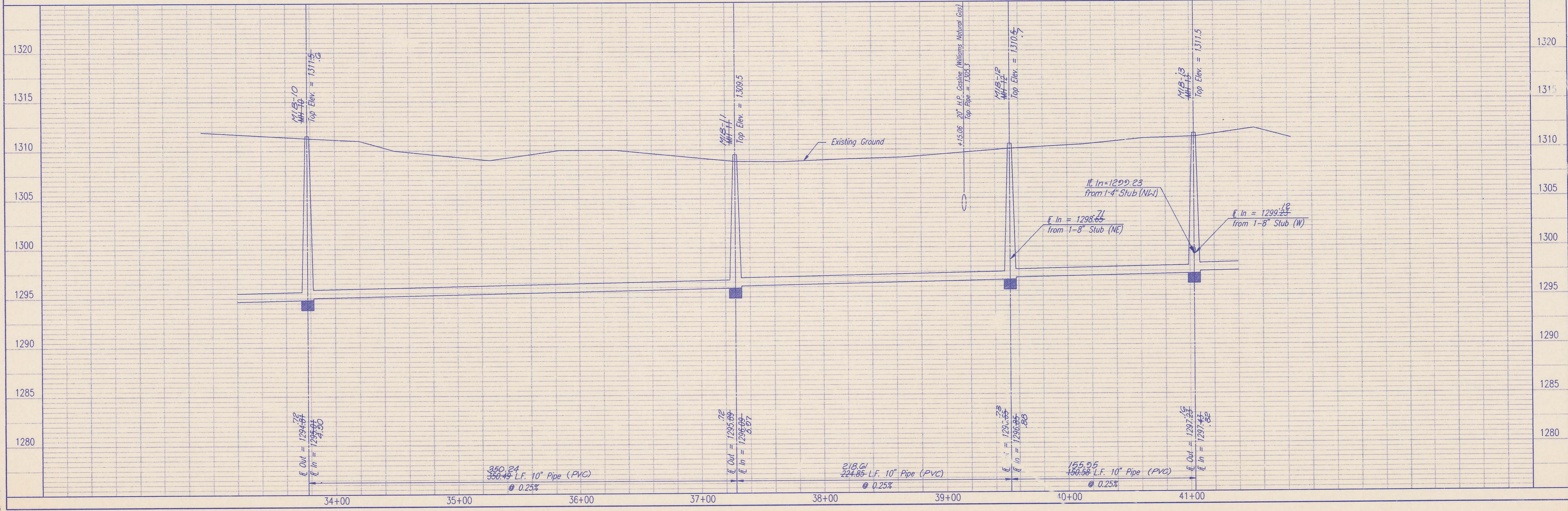
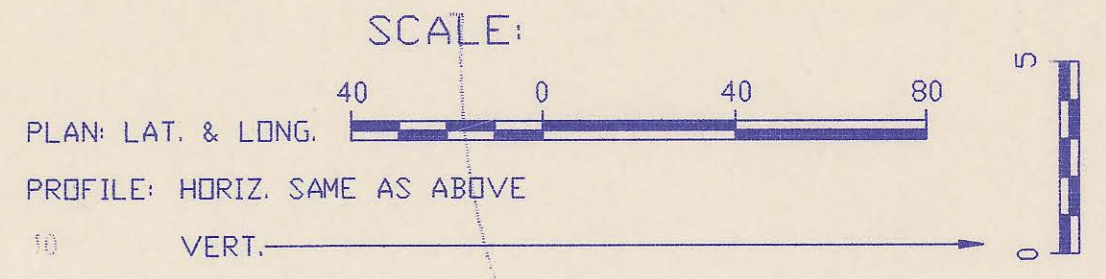
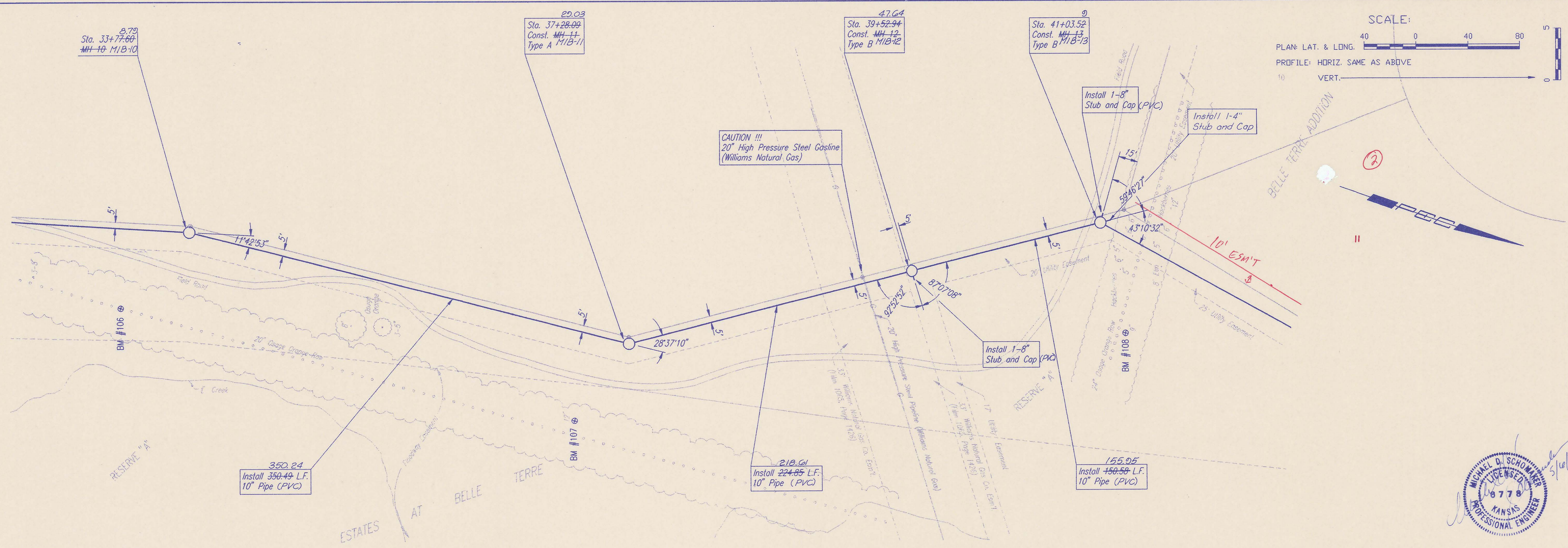


PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 ENGINEERS
 WICHITA, KANSAS
 Job No. 34-81051-G-024
 Date January, 1983
 Designed by DLM, MDS
 Drawn by TS, GM, DP
MAIN NO. 1
 (STA. 16+13.27 TO STA. 26+48.46)
 SANITARY SEWER MAIN
 BROOKHAVEN JOINT SEWER DISTRICT
 SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
 DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER
 Sht. 9 of 10

PLAN	CHECKED	DATE
	CHECKED	

PROFILE	CHECKED	DATE
	CHECKED	

DRAWING NAME: PP2
 LOCATION: Q39336
 CENTER COORDINATES:
 DATE LAST WORKED ON: May 5, 1993
 EN-FGL



SALDOWICK COUNTY BUREAU OF PUBLIC SERVICES
 DIRECTOR BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER
MAIN NO. 1
 (STA. 33+77.60 TO STA. 41+03.52)
 SANITARY SEWER MAIN
 BROOKHAVEN JOINT SEWER DISTRICT

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 ENGINEERS
 WICHITA, KANSAS
 Job No. 34-93136
 Date March, 1993

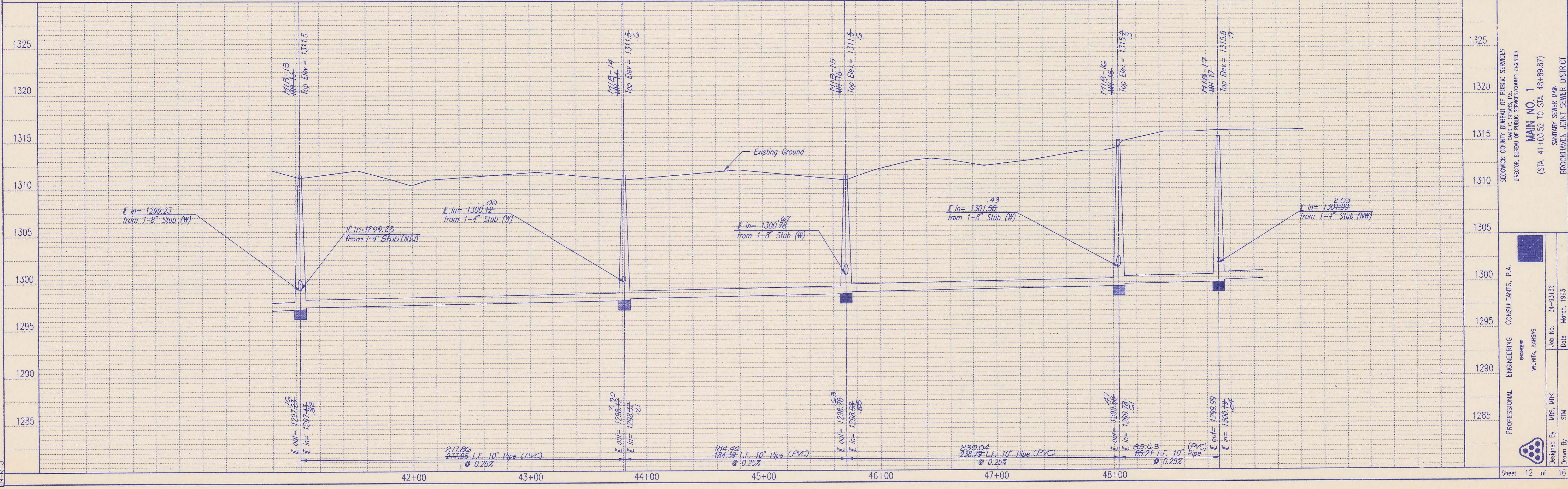
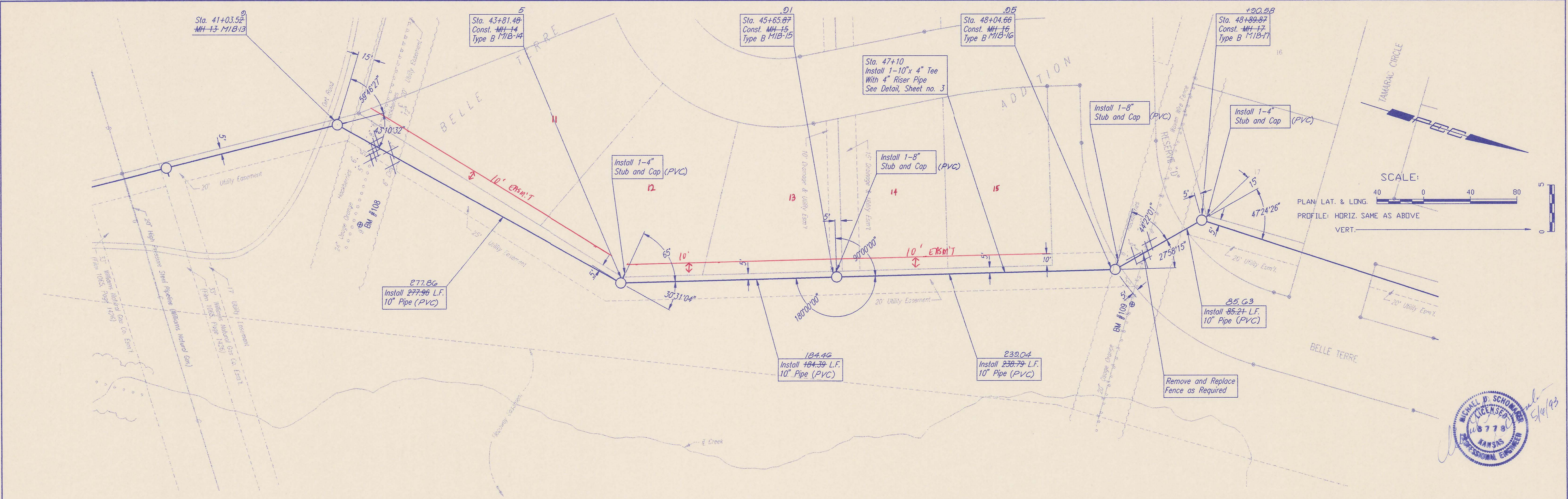
Designed By: MDS, MDK
 Drawn By: GM

Sheet 11 of 16

PLAN	CHECKED	CHECKED
BY		
DATE		

PROFILE	CHECKED	CHECKED
BY		
DATE		

DRAWING NAME: PP-3
 OWNER: SEDGWICK COUNTY
 PROJECT: SANITARY SEWER MAIN
 DATE LAST WORKED ON: May 5, 1993



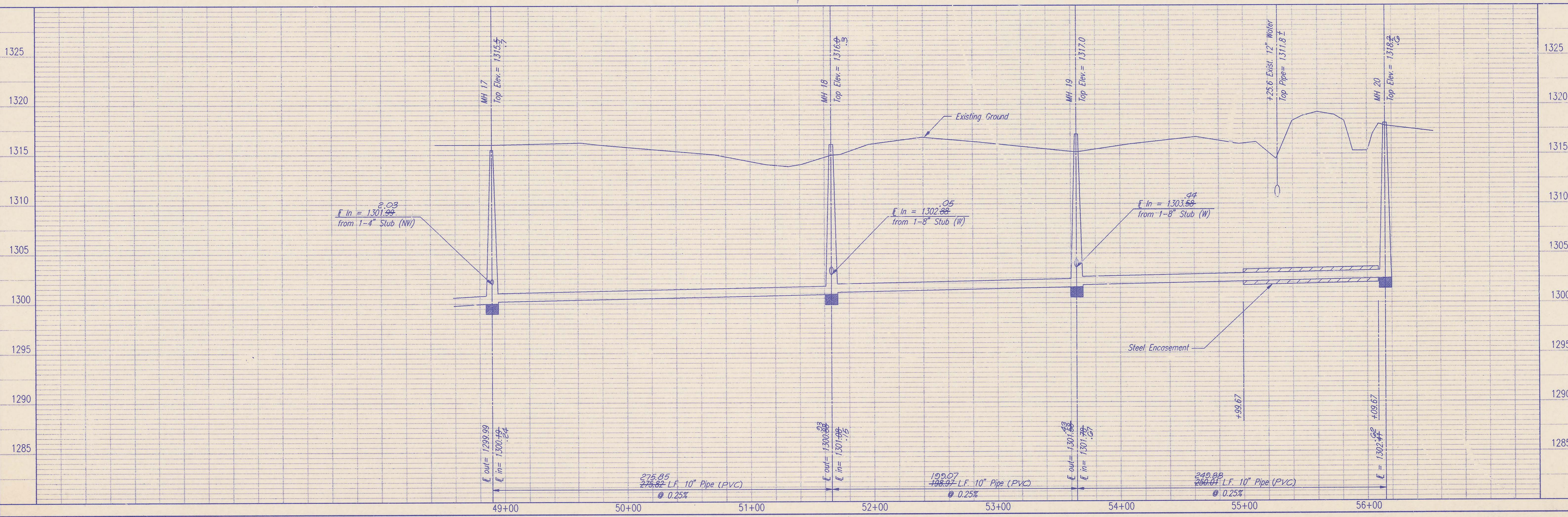
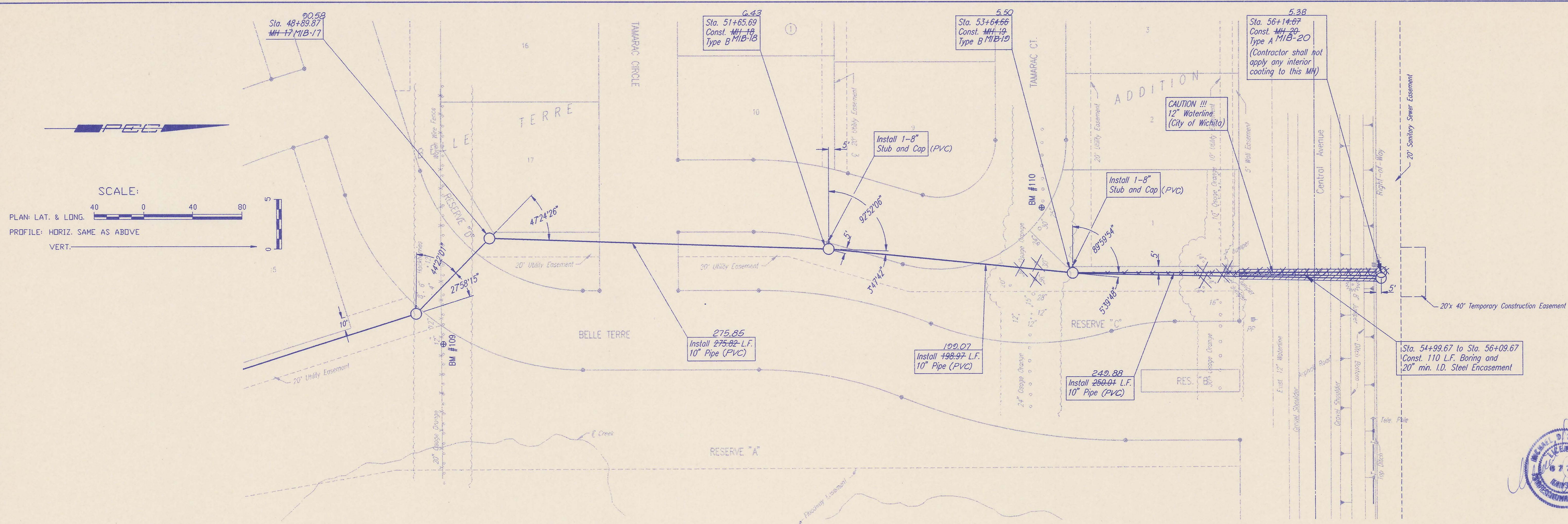
SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
 DIRECTOR: BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER
MAIN NO. 1
 (STA. 41+03.52 TO STA. 48+89.87)
 SANITARY SEWER MAIN
 BROOKHAVEN JOINT SEWER DISTRICT

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 ENGINEERS
 WICHITA, KANSAS
 Job No. 34-93156
 Date: March, 1993
 Designed By: MDS, MDK
 Drawn By: STM

DATE	
BY	
CHECKED	CHECKED
PLAN	

DATE	
BY	
CHECKED	CHECKED
PROFILE	

DRAWING NAME: PP4
 LOCATION: 0513136
 ROTATION ANGLE:
 DATE LAST WORKED ON: May 5, 1993
 EN-RFJ

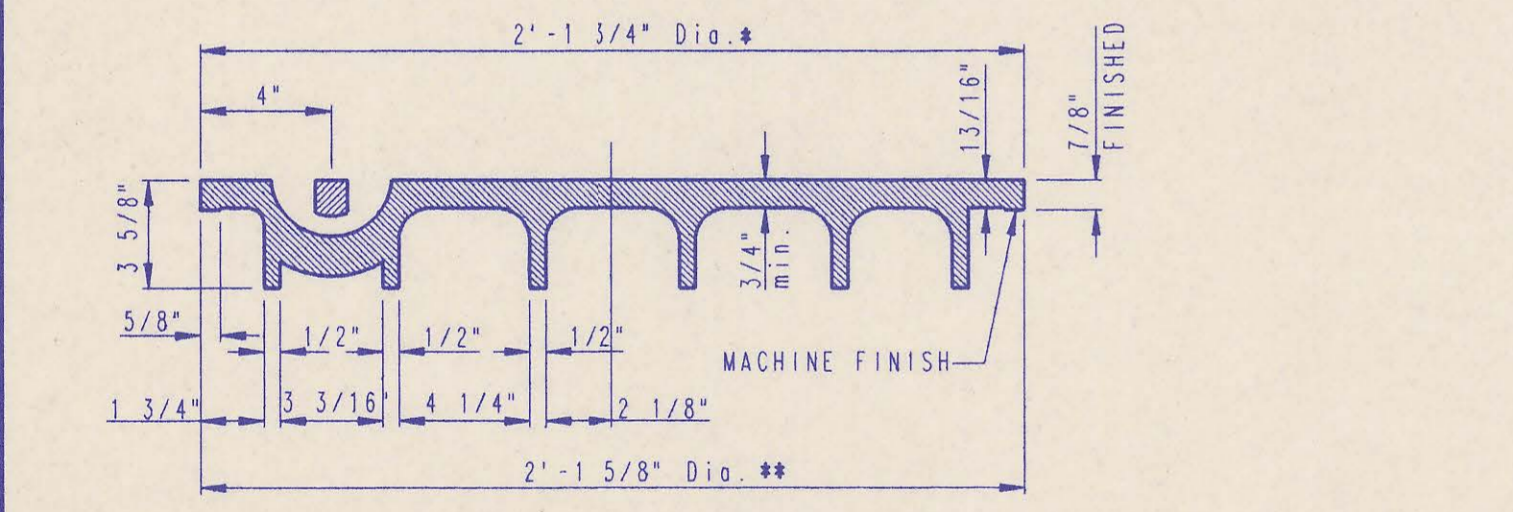
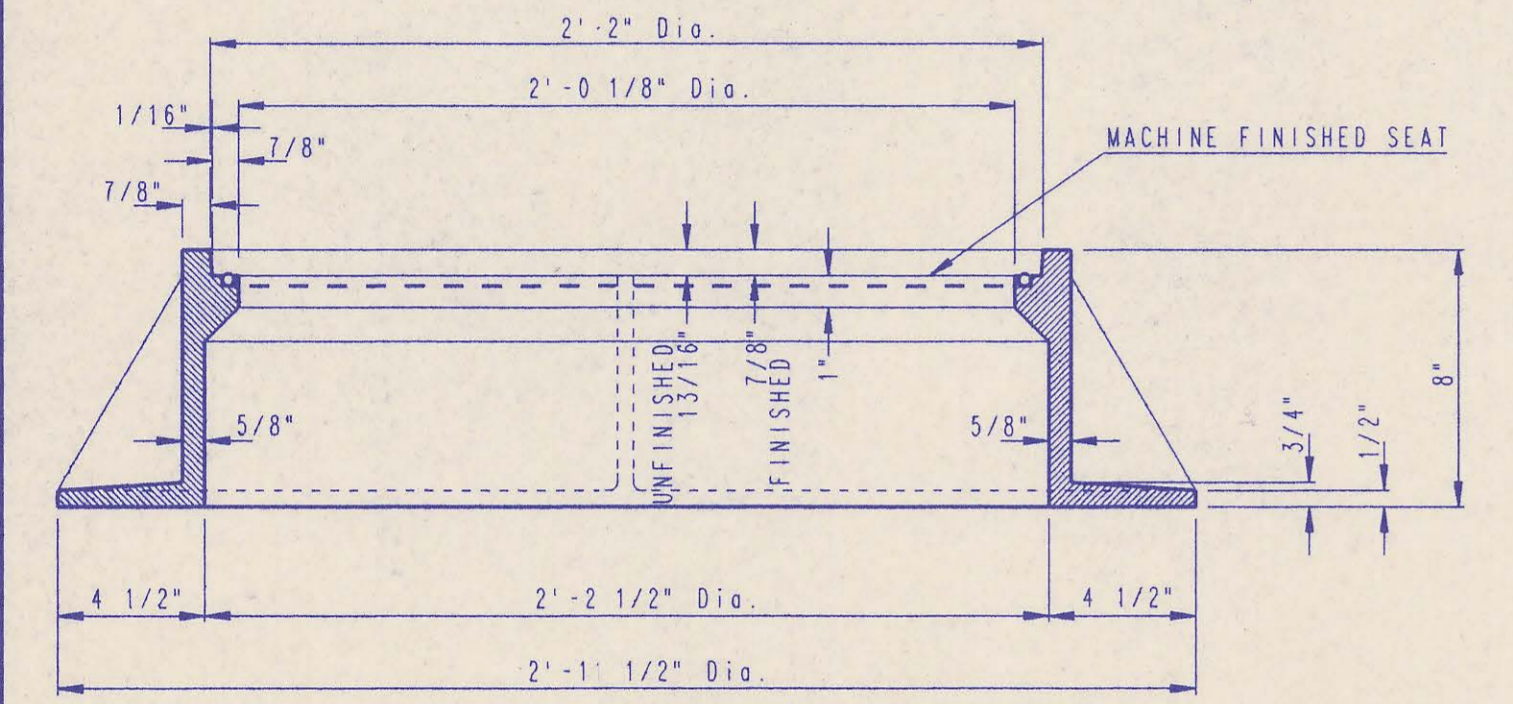
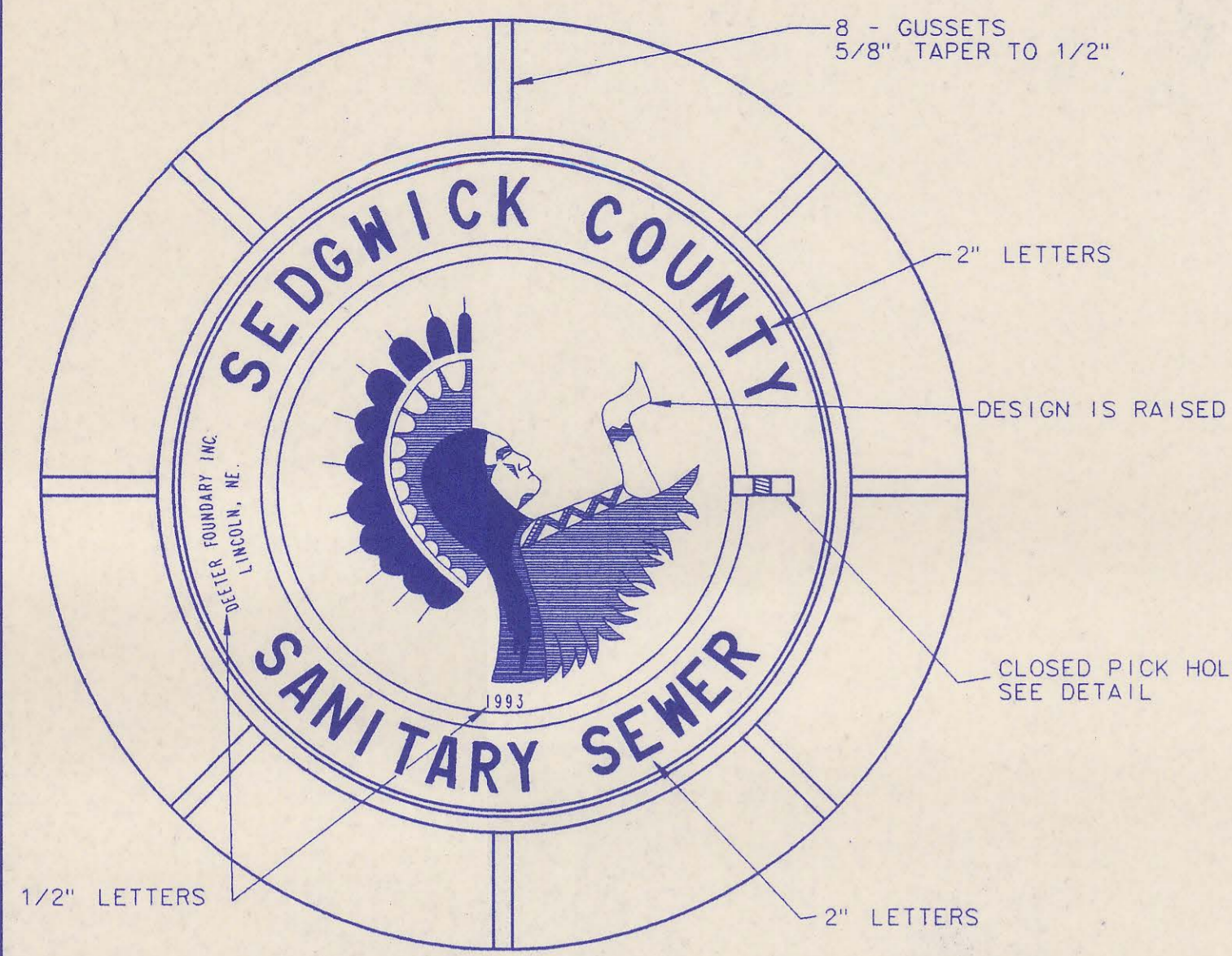


SEDOWICK COUNTY BUREAU OF PUBLIC SERVICES
 DIRECTOR: BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER
MAIN NO. 1
 (STA. 48+89.87 TO STA. 56+14.67)
 SANITARY SEWER MAIN
 BROOKHAVEN JOINT SEWER DISTRICT

PROFESSIONAL ENGINEERING CONSULTANTS, P.A.
 ENGINEERS
 WICHITA, KANSAS
 Job No. 34-93136
 Date March, 1993

Designed By: MOS: MDK
 Drawn By: STM

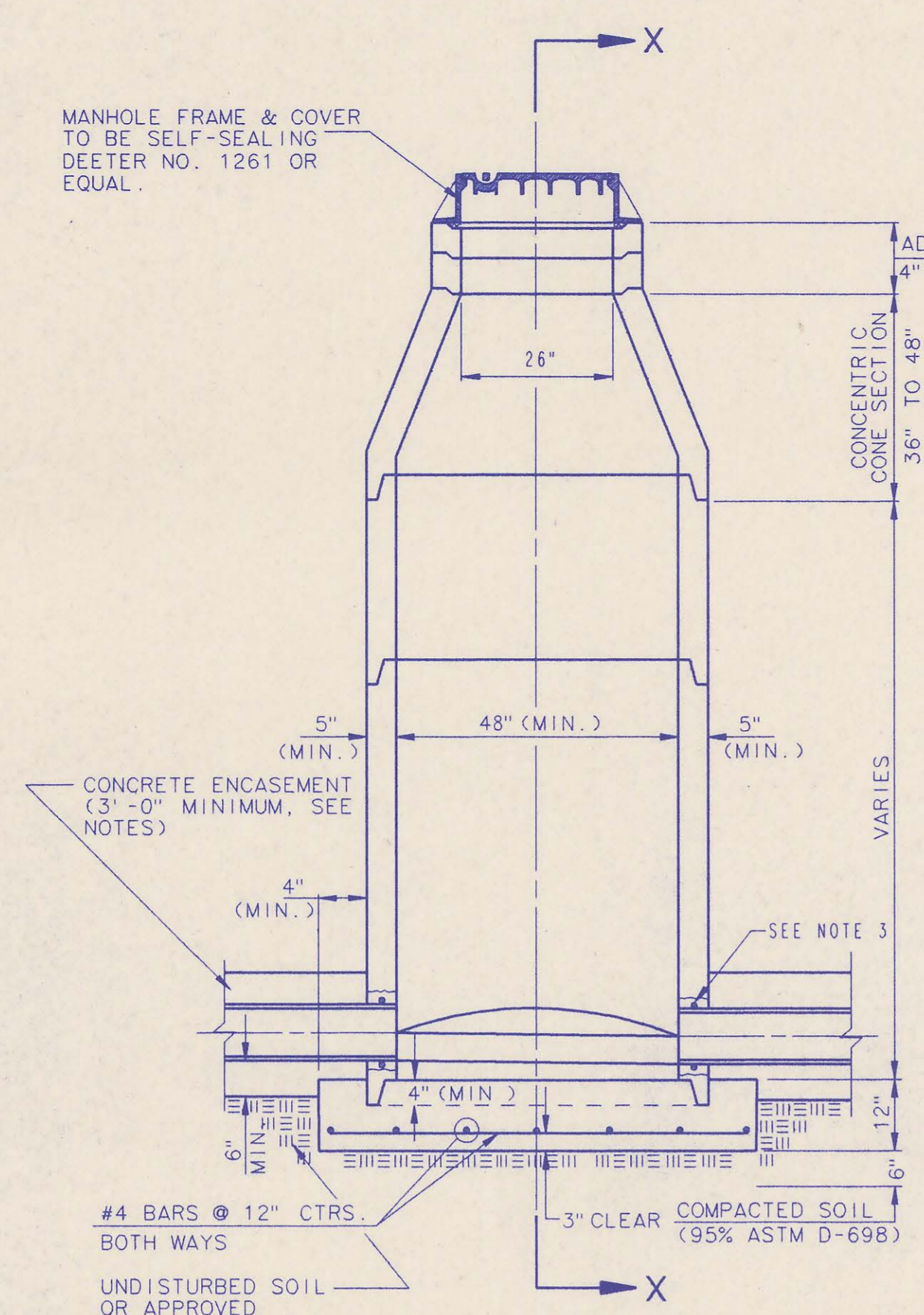
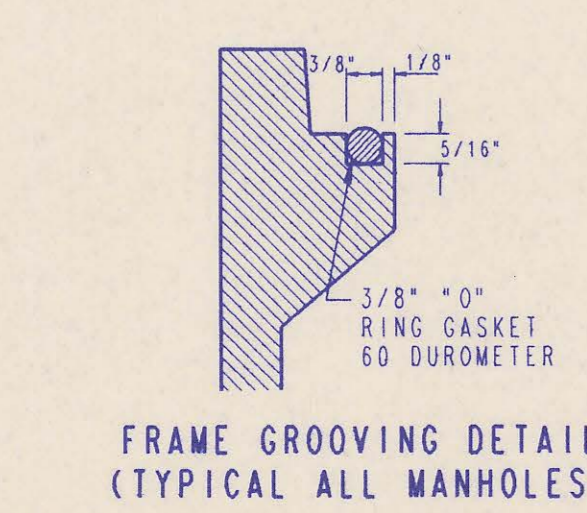
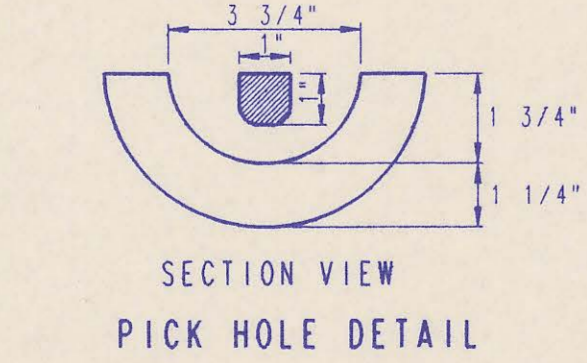
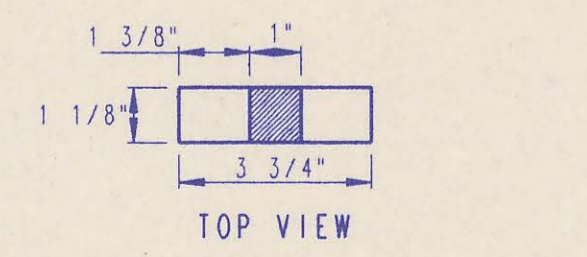
Sheet 13 of 16



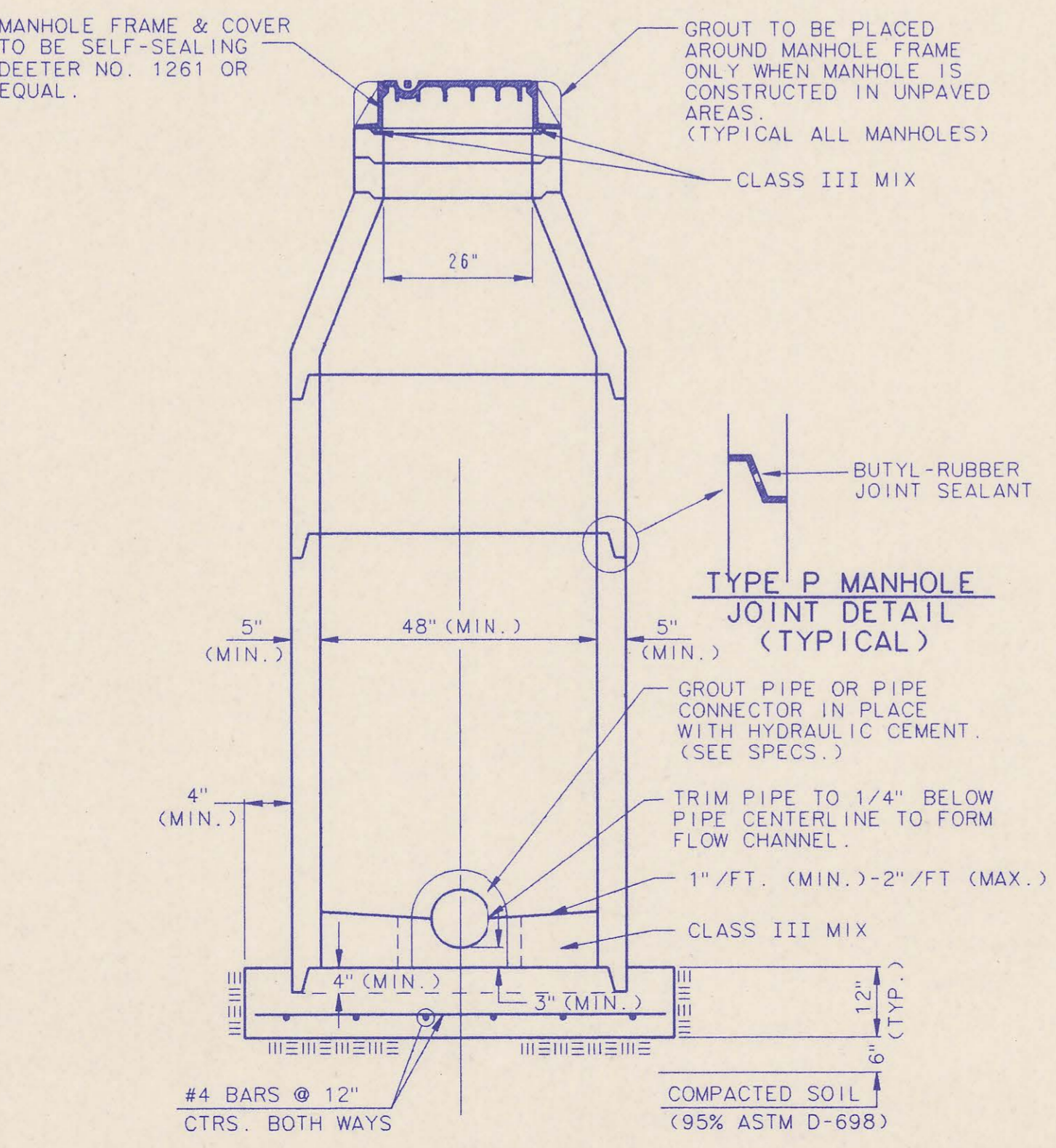
MANHOLE FRAME AND COVER
(TOTAL WEIGHT = 430 LBS.)

MANHOLE FRAME AND COVER NOTES

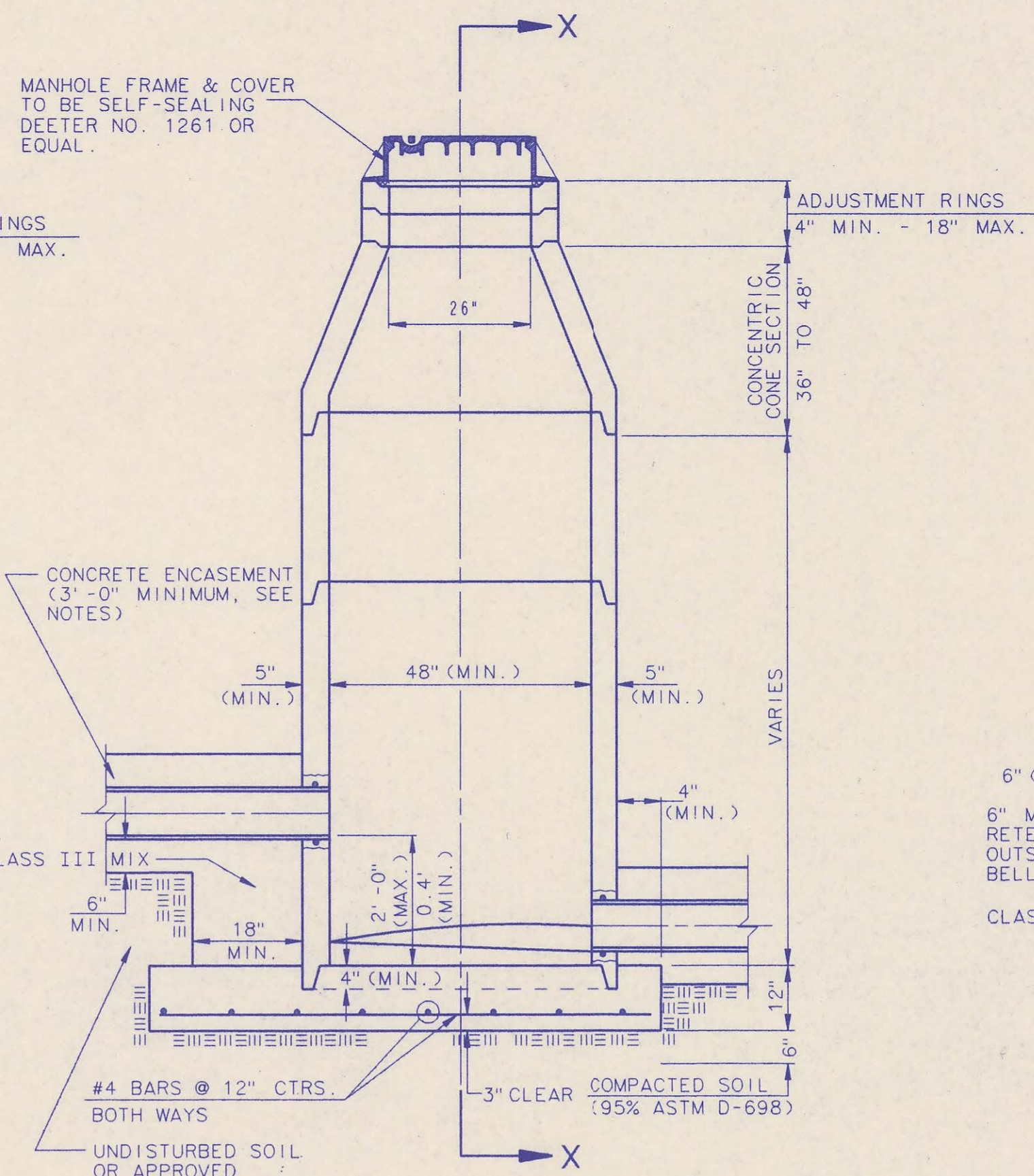
1. CAST IRON MANHOLE FRAME AND COVER SHALL CONFORM TO ASTM A-48, CLASS 35B, OR BETTER.
2. CASTINGS ARE TO BE MANUFACTURED TRUE TO PATTERN AND WITH SATISFACTORY FIT OF COMPONENT PARTS. CASTINGS SHALL BE FREE OF DEFECTS. DIMENSIONS AS DETAILED ON PLAN SHALL NOT DEVIATE BY ± 1/16" PER FOOT.
3. NO OTHER LETTERING OR MARKINGS OTHER THAN THOSE DETAILED ON PLAN WILL BE PERMITTED ON CASTINGS.
4. CASTINGS MUST BE DOMESTICALLY MANUFACTURED IN THE UNITED STATES OF AMERICA.
5. THE FRAMES AND COVERS SHALL BE FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACES SO FITTING PARTS WILL NOT RATTLE OR ROCK UNDER TRAFFIC.
6. MANHOLE CASTINGS SHALL BE SELF-SEALING DEETER FOUNDRY INC. NO. 1261 OR APPROVED EQUAL UNLESS OTHERWISE SPECIFIED IN THE SPECIAL CONDITIONS. (MINIMUM WT. 430 LBS.) ALL MANHOLE CASTINGS SHALL BE CONSIDERED SUBSIDIARY TO THE UNIT PRICES BID FOR THE VARIOUS MANHOLE TYPES.
7. GRIND ALL BURRS SMOOTH, CLEAN THOROUGHLY, THEN APPLY SHOP COAT OF ASPHALT BASE PAINT.
8. THE MANUFACTURER SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO MANUFACTURE. THE ENGINEER SHALL RETAIN THE RIGHT TO REJECT CASTINGS NOT CONFORMING TO THE SPECIFICATIONS OR THE APPROVED SHOP DRAWINGS.
9. THE MANHOLE FRAME SHALL BE FURNISHED WITH AN APPROVED "O" RING GASKET GROOVED INTO THE BEARING SURFACE OF THE MANHOLE FRAME (PER DETAIL). THE "O" RING GASKET SHALL NOT BE INSTALLED IN THE MANHOLE FRAME UNTIL AFTER FINAL INSPECTION AND ACCEPTANCE OF THE PROJECT BY THE ENGINEER.



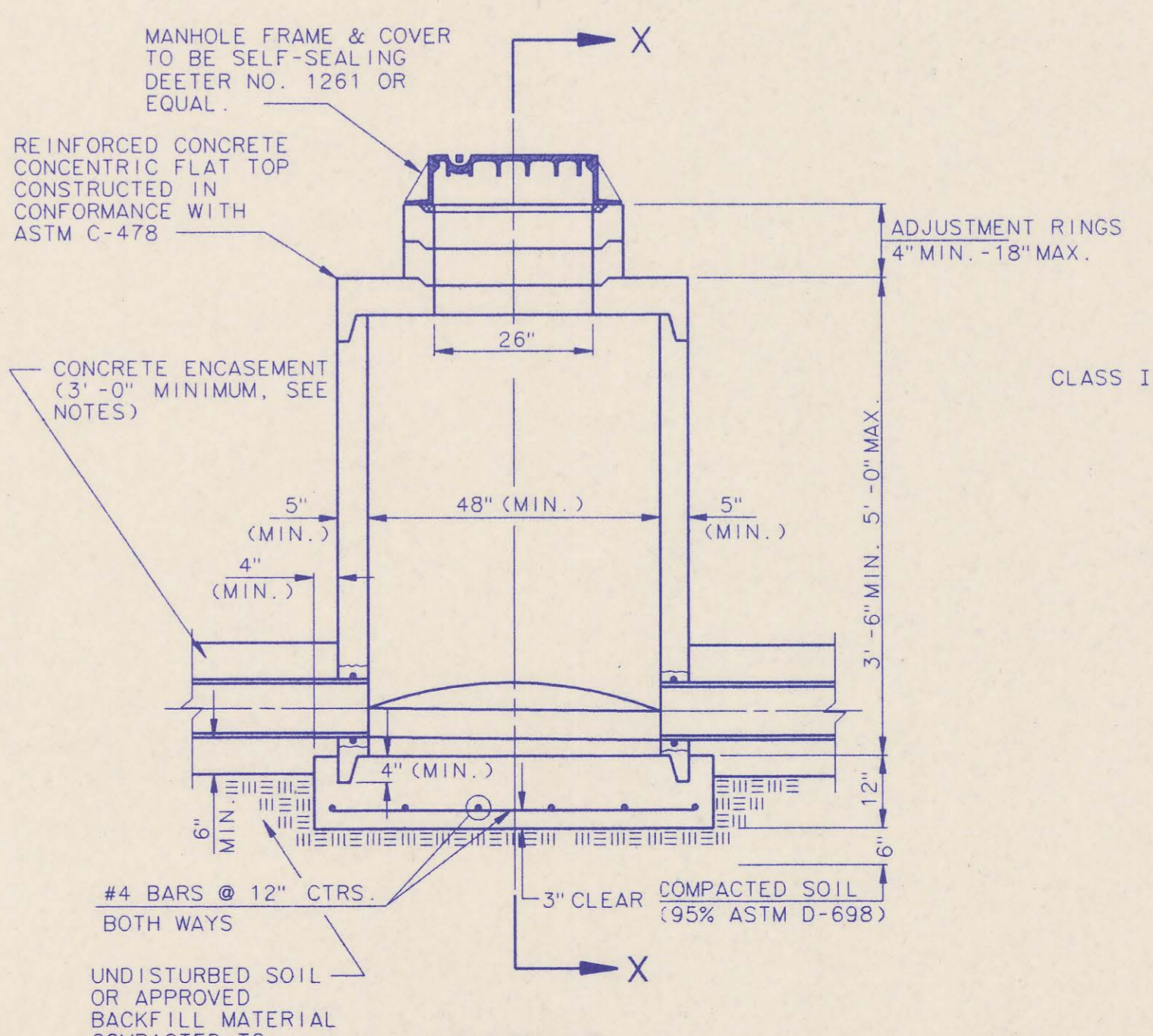
PRECAST STANDARD MANHOLE TYPE "A"



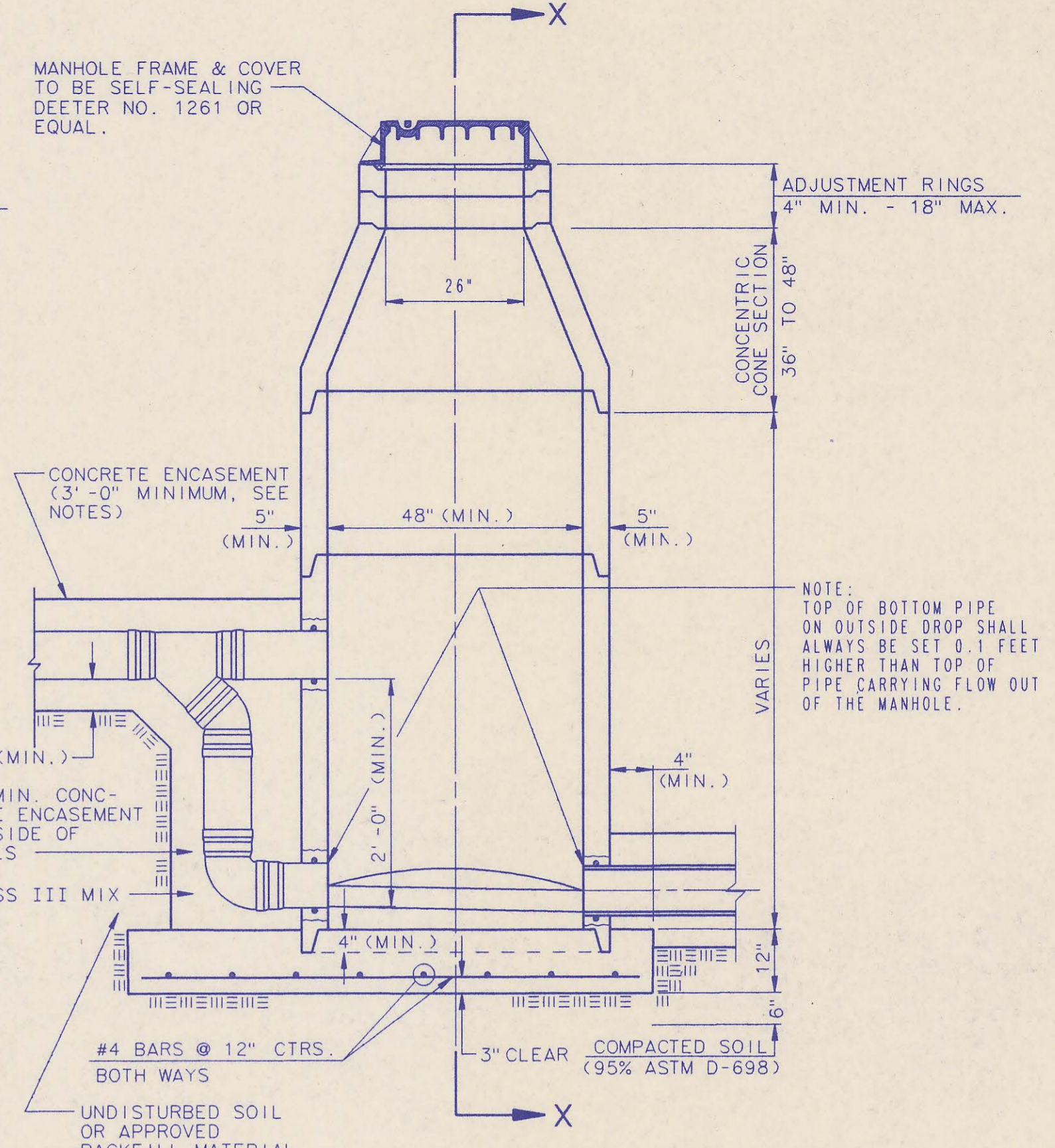
SECTION X (TYPICAL)



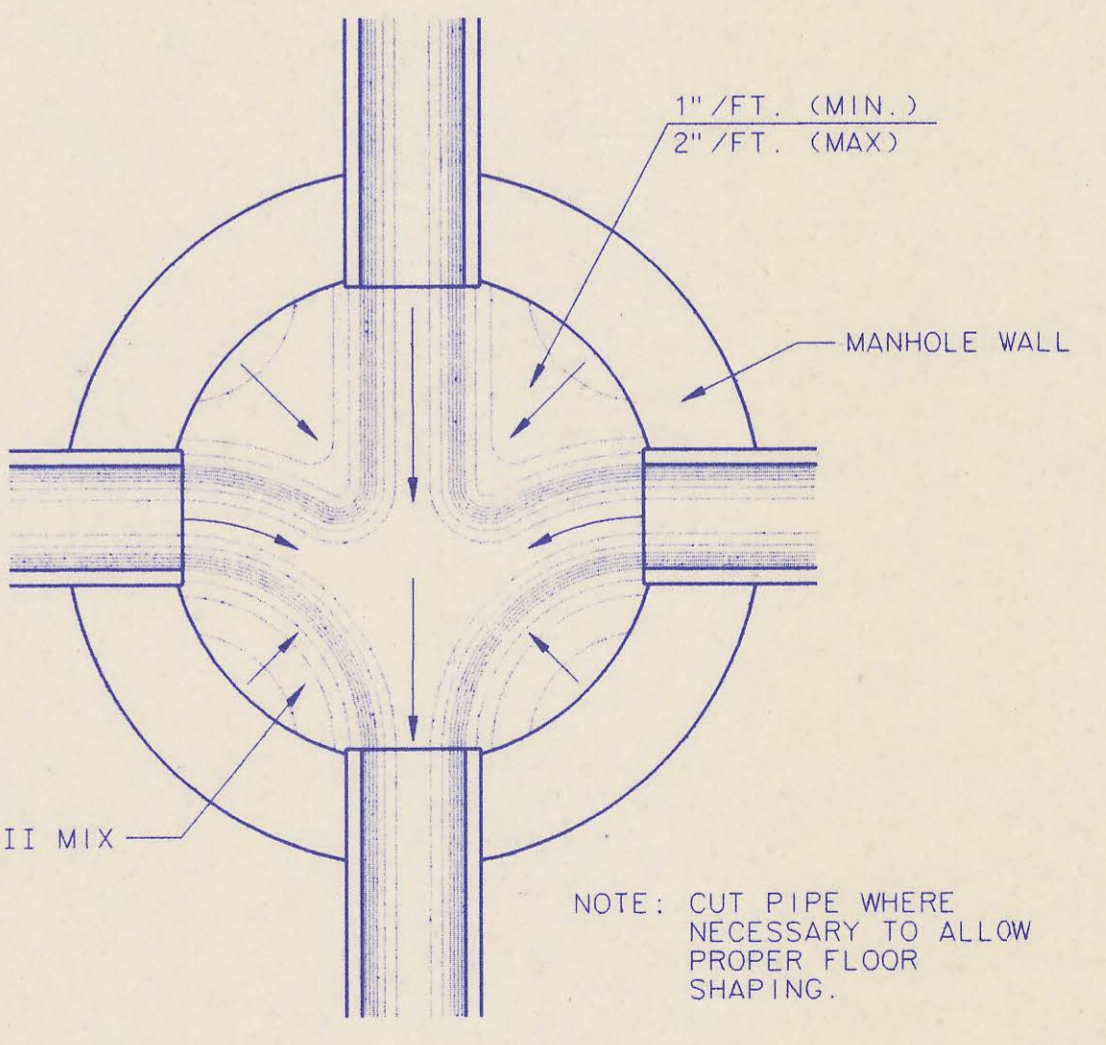
PRECAST INSIDE DROP MANHOLE TYPE "B"



PRECAST SHALLOW MANHOLE TYPE "D"



PRECAST OUTSIDE DROP MANHOLE TYPE "C"



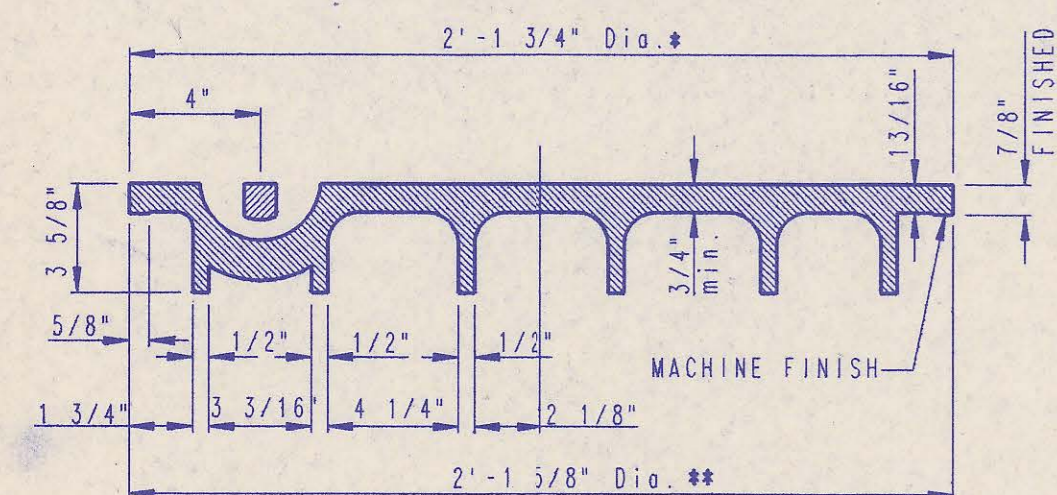
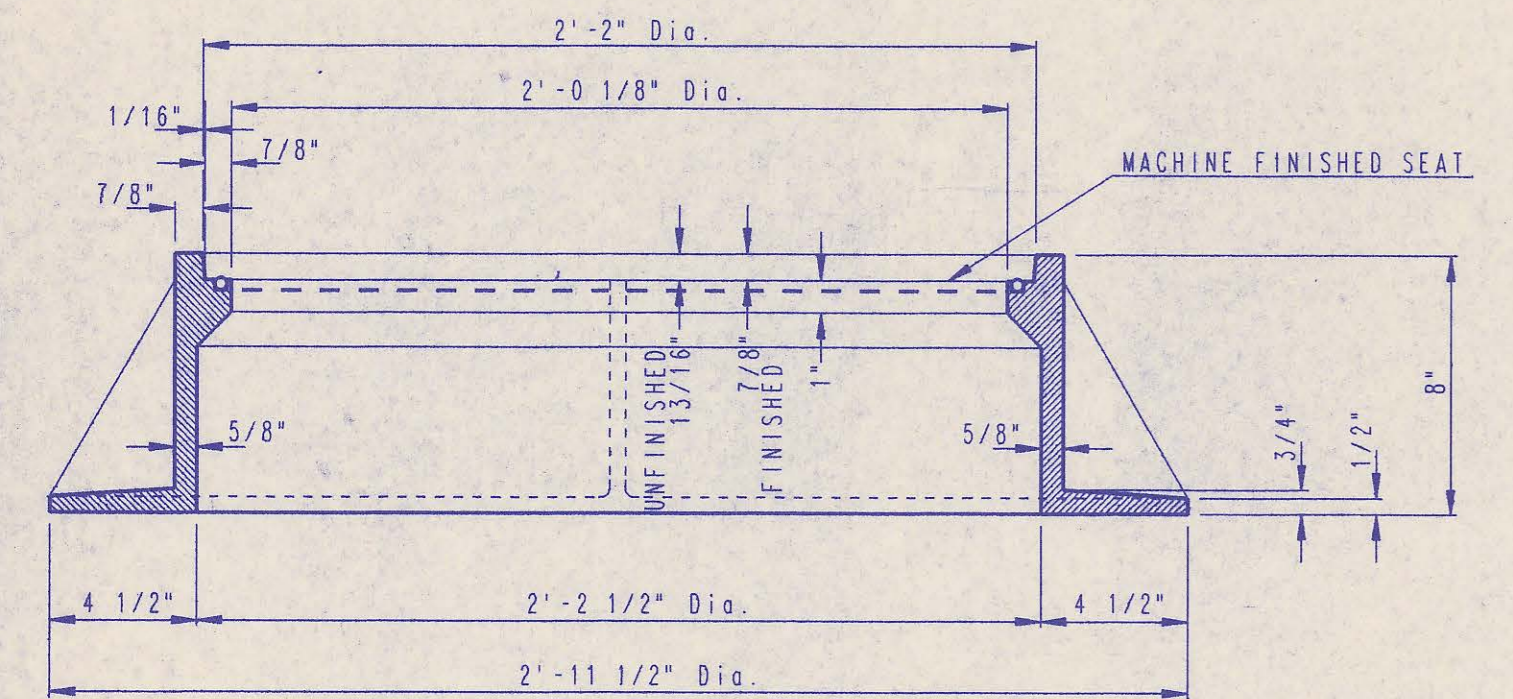
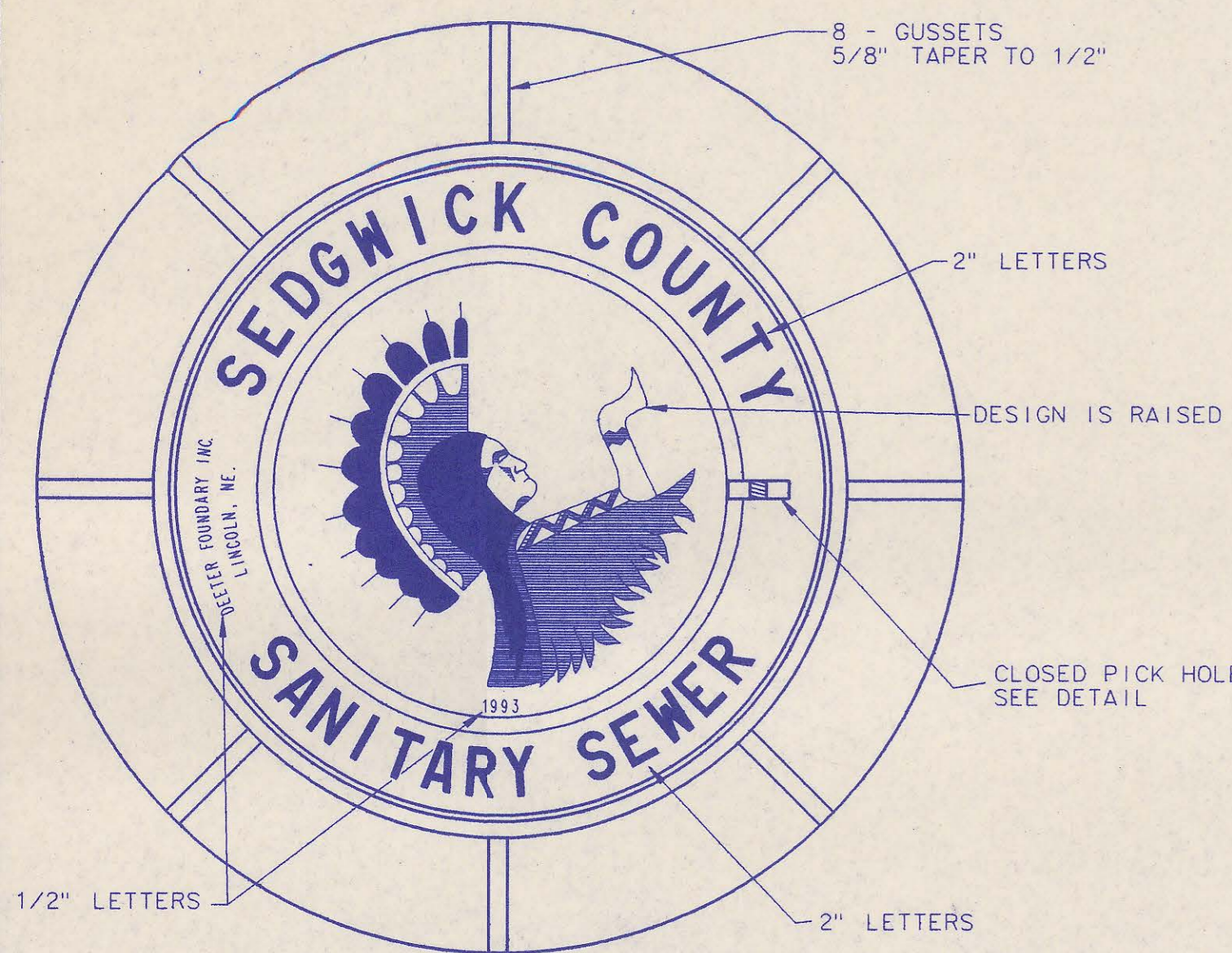
TYPICAL MANHOLE FLOOR SHAPING

PRECAST MANHOLE NOTES

1. IF IN THE OPINION OF THE ENGINEER, THE MANHOLE SUBGRADE APPEARS UNSTABLE, THE CONTRACTOR WILL HAVE THE OPTION TO COMPACT SUBGRADE AS SHOWN OR INCREASE THE THICKNESS OF THE MANHOLE BASE AS DIRECTED BY THE ENGINEER.
2. STEEL REINFORCING WILL BE REQUIRED IN ALL MANHOLE BASES.
3. APPROVED FLEXIBLE WATERSTOP GASKETS WHICH MEET OR EXCEED THE TEST REQUIREMENTS OF ASTM C-923 SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN PLASTIC PIPE IS USED. SEWER PIPE EXTENDING FROM MANHOLES SHALL BE SUPPORTED WITH CONCRETE ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL.
4. THE MANHOLE FRAME SHALL BE SEATED ON AN APPROVED BUTYL-RUBBER SEALANT TO PROVIDE A WATER-TIGHT SEAL BETWEEN THE MANHOLE ADJUSTMENT RING AND THE MANHOLE FRAME.
5. GASKETED PIPE CAPS SHALL BE PROVIDED BY THE PIPE SUPPLIER. GLUED OR CEMENTED CAPS WILL NOT BE ACCEPTED.
6. ALL MANHOLE CONSTRUCTION SHALL BE WATER TIGHT.
7. TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
8. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISION OF ASTM C478 AS MODIFIED BY THE SPECIFICATIONS.
9. CONCRETE FOR MANHOLE BASES SHALL BE CLASS 1 AS DESCRIBED IN THE SPECIFICATIONS.
10. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO MANHOLE BASE.
11. MANHOLES WITH PIPE SIZES 24" AND LARGER SHALL HAVE 5" INSIDE DIAMETER (MIN.).
12. INSIDE DIAMETER OF FIVE-FOOT DIAMETER PRECAST MANHOLES SHALL REMAIN CONSTANT TO THE LOCATION OF THE REDUCING FLAT TOP WHICH CONNECTS THE FOUR-FOOT DIAMETER CONE SECTION TO THE FIVE-FOOT DIAMETER MANHOLE BARREL.

3	All Manholes self-sealing/MH Cover	RJ	1/25/93
2	Modified pipe connection note	RJ	6/01/92
1	Manhole Frame and Cover Note 1	RJ	7/16/91
No.	Revision	By	Date

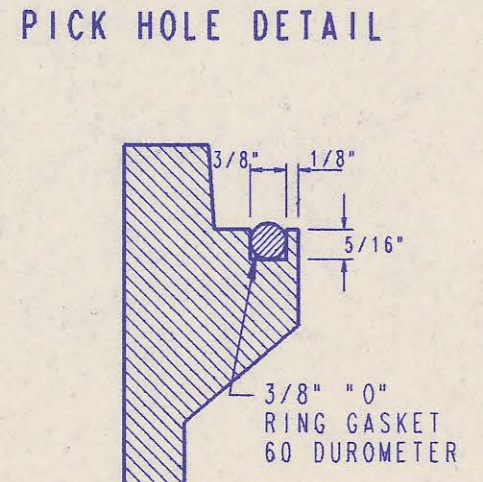
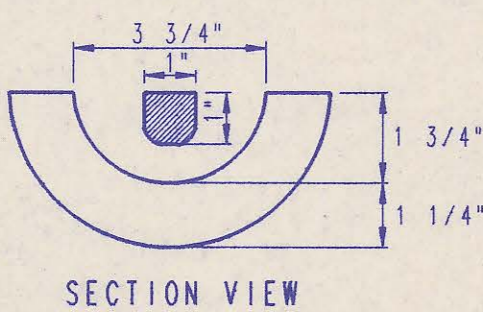
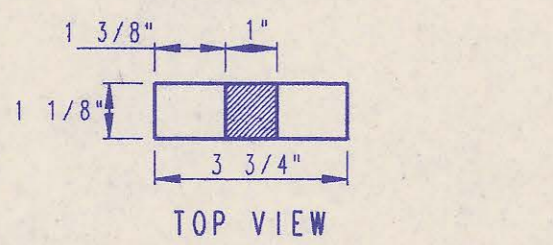
PRECAST MANHOLE DETAILS
ADOPTED AS STANDARD DESIGN SEPTEMBER, 1989
BY
SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER



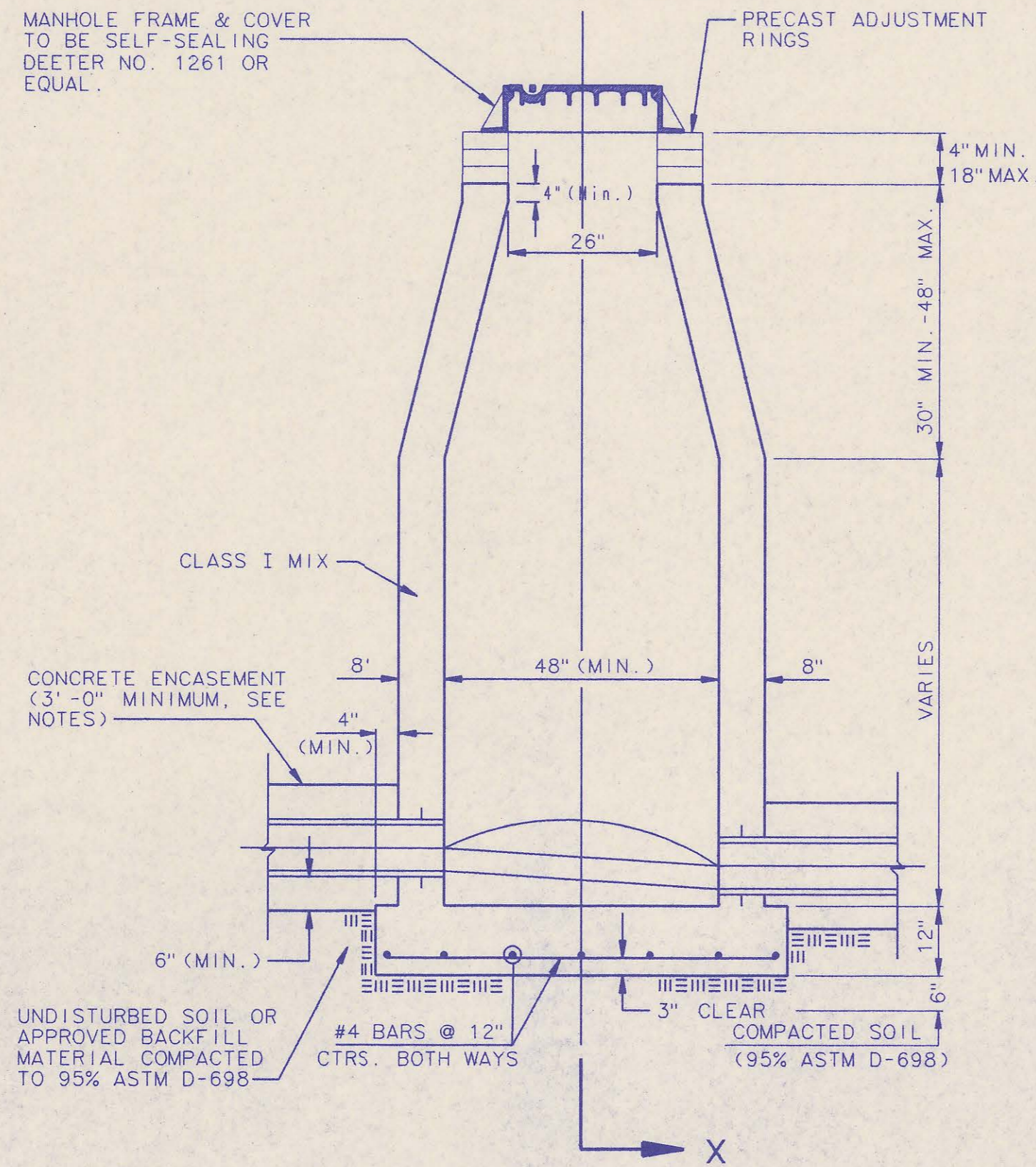
MANHOLE FRAME AND COVER
(TOTAL WEIGHT = 430 LBS.)

MANHOLE FRAME AND COVER NOTES

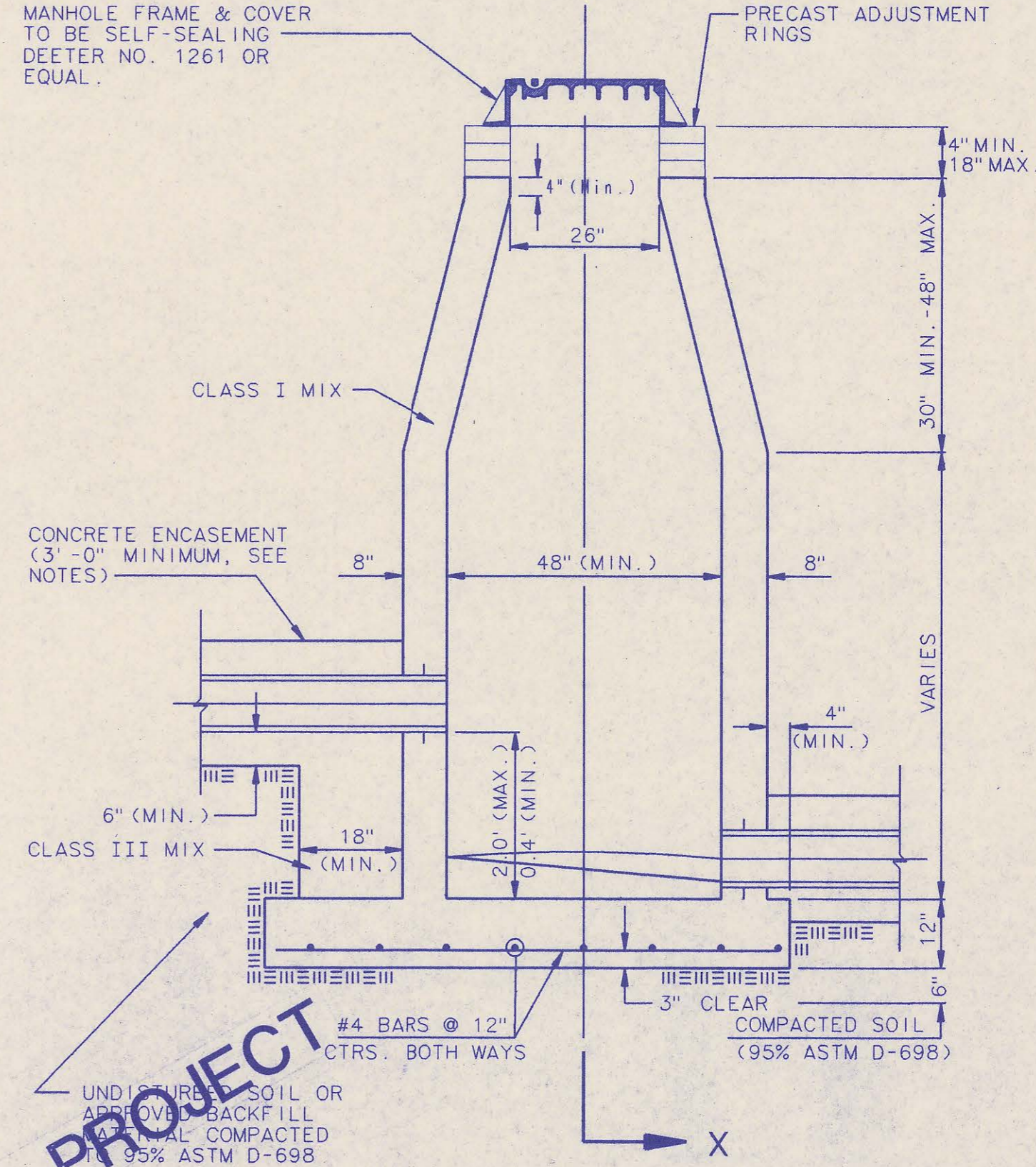
1. CAST IRON MANHOLE FRAME AND COVER SHALL CONFORM TO ASTM A-48, CLASS 35B, OR BETTER.
2. CASTINGS ARE TO BE MANUFACTURED TRUE TO PATTERN AND WITH SATISFACTORY FIT OF COMPONENT PARTS. CASTINGS SHALL BE FREE OF DEFECTS. DIMENSIONS AS DETAILED ON PLAN SHALL NOT DEVIATE BY ± 1/16" PER FOOT.
3. NO OTHER LETTERING OR MARKINGS OTHER THAN THOSE DETAILED ON PLAN WILL BE PERMITTED ON CASTINGS.
4. CASTINGS MUST BE DOMESTICALLY MANUFACTURED IN THE UNITED STATES OF AMERICA.
5. THE FRAMES AND COVERS SHALL BE FURNISHED WITH MACHINED HORIZONTAL BEARING SURFACES SO FITTING PARTS WILL NOT RATTLE OR ROCK UNDER TRAFFIC.
6. MANHOLE CASTINGS SHALL BE SELF-SEALING DEETER FOUNDRY, INC. NO. 1261 OR APPROVED EQUAL, UNLESS OTHERWISE SPECIFIED IN THE SPECIAL CONDITIONS. (MINIMUM WT. 430 LBS.) ALL MANHOLE CASTINGS SHALL BE CONSIDERED SUBSIDIARY TO THE UNIT PRICES BID FOR THE VARIOUS MANHOLE TYPES.
7. GRIND ALL BURRS SMOOTH, CLEAN THOROUGHLY, THEN APPLY SHOP COAT OF ASPHALT BASE PAINT.
8. THE MANUFACTURER SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO MANUFACTURE. THE ENGINEER SHALL RETAIN THE RIGHT TO REJECT CASTINGS NOT CONFORMING TO THE SPECIFICATIONS OR THE APPROVED SHOP DRAWINGS.
9. THE MANHOLE FRAME SHALL BE FURNISHED WITH AN APPROVED "O" RING GASKET GROOVED INTO THE BEARING SURFACE OF THE MANHOLE FRAME (PER DETAIL). THE "O" RING GASKET SHALL NOT BE INSTALLED IN THE MANHOLE FRAME UNTIL AFTER FINAL INSPECTION AND ACCEPTANCE OF THE PROJECT BY THE ENGINEER.



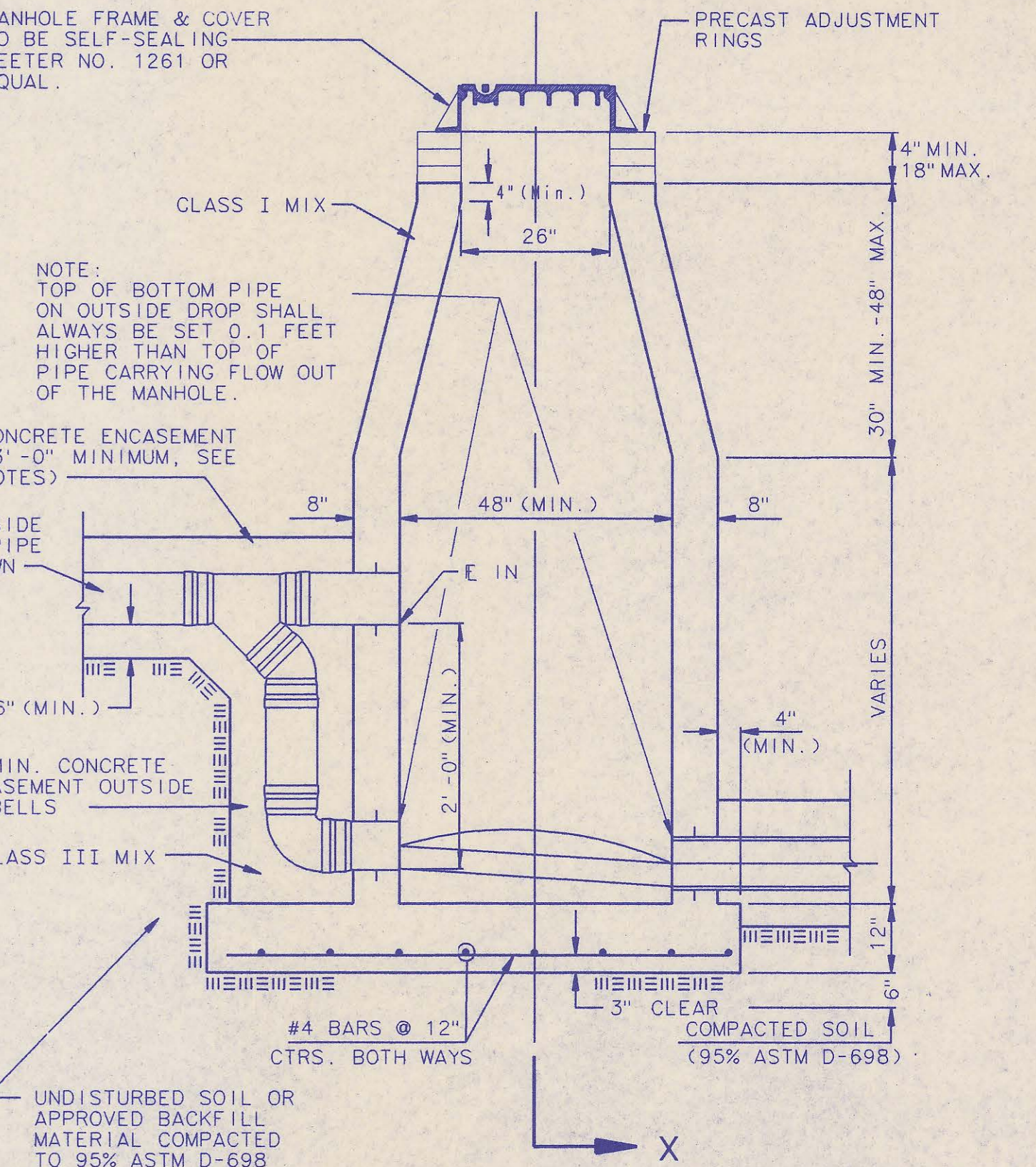
FRAME GROOVING DETAIL
(TYPICAL ALL MANHOLES)



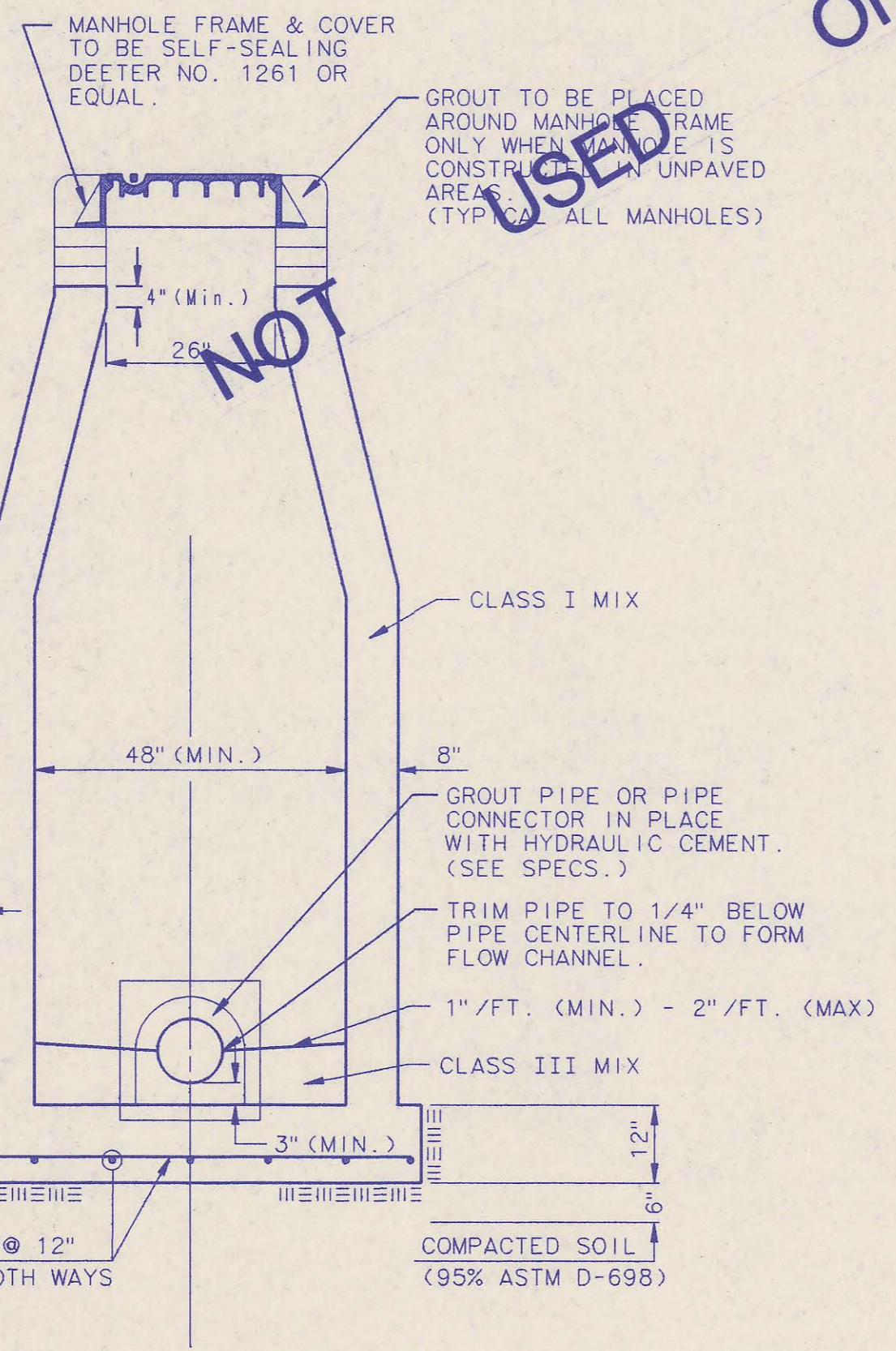
CAST IN PLACE STANDARD MANHOLE TYPE "A"



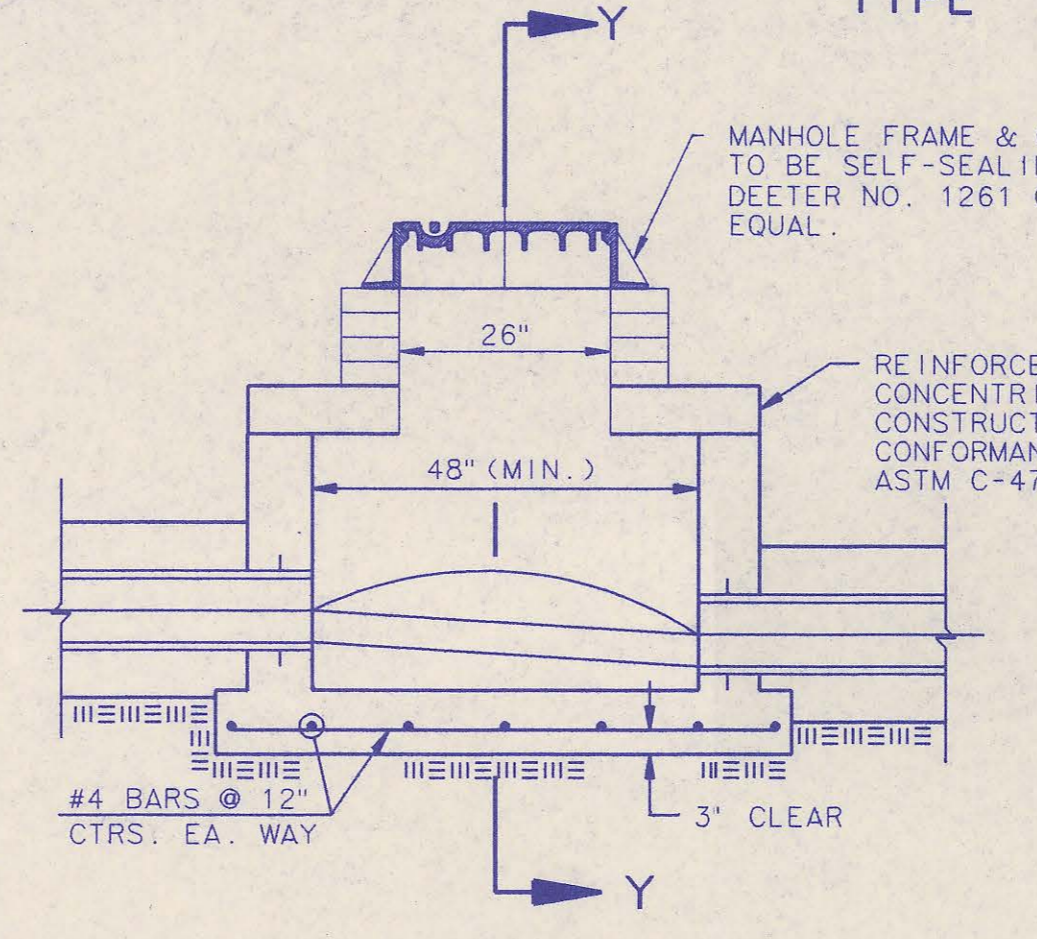
CAST IN PLACE DROP MANHOLE TYPE "B"



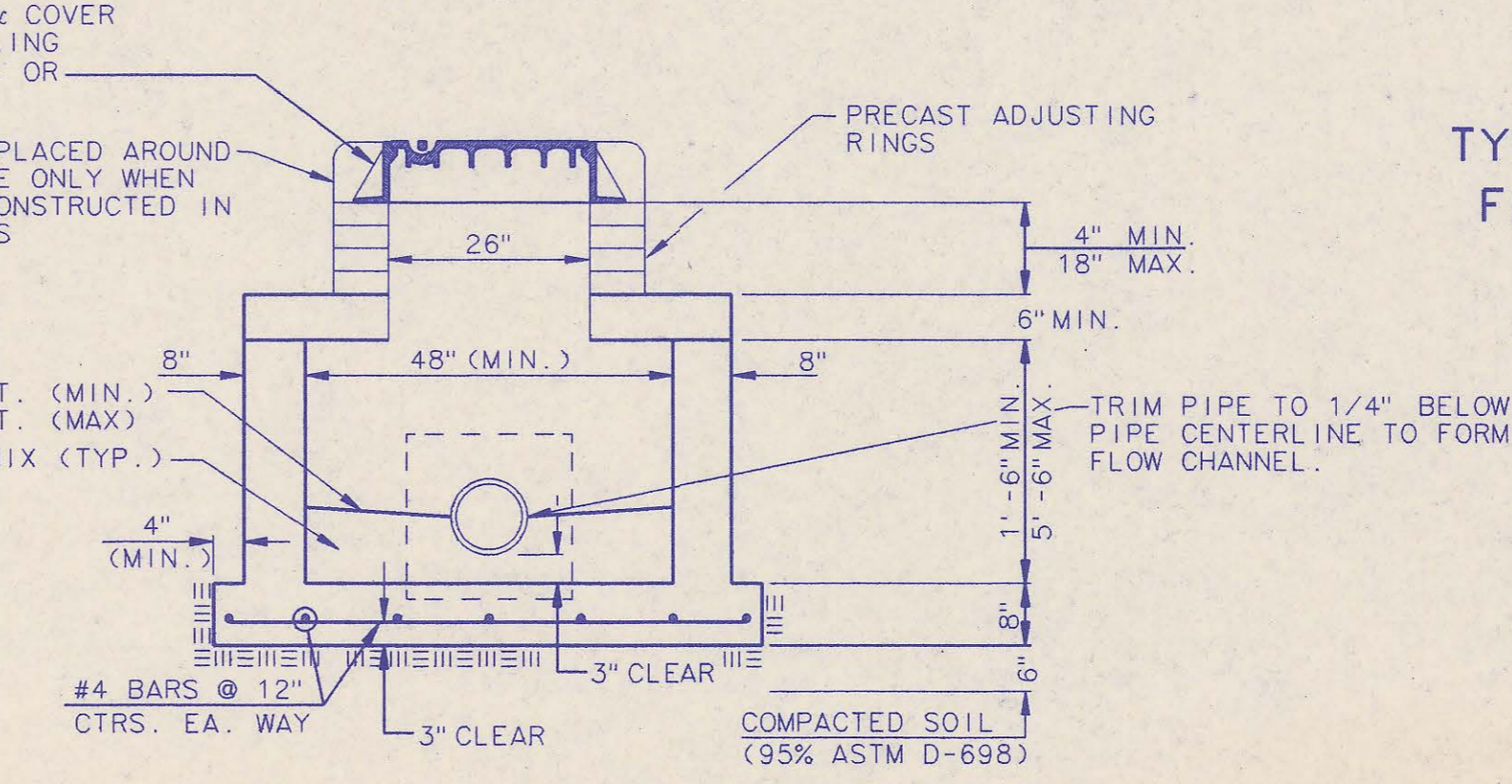
CAST IN PLACE OUTSIDE DROP MANHOLE TYPE "C"



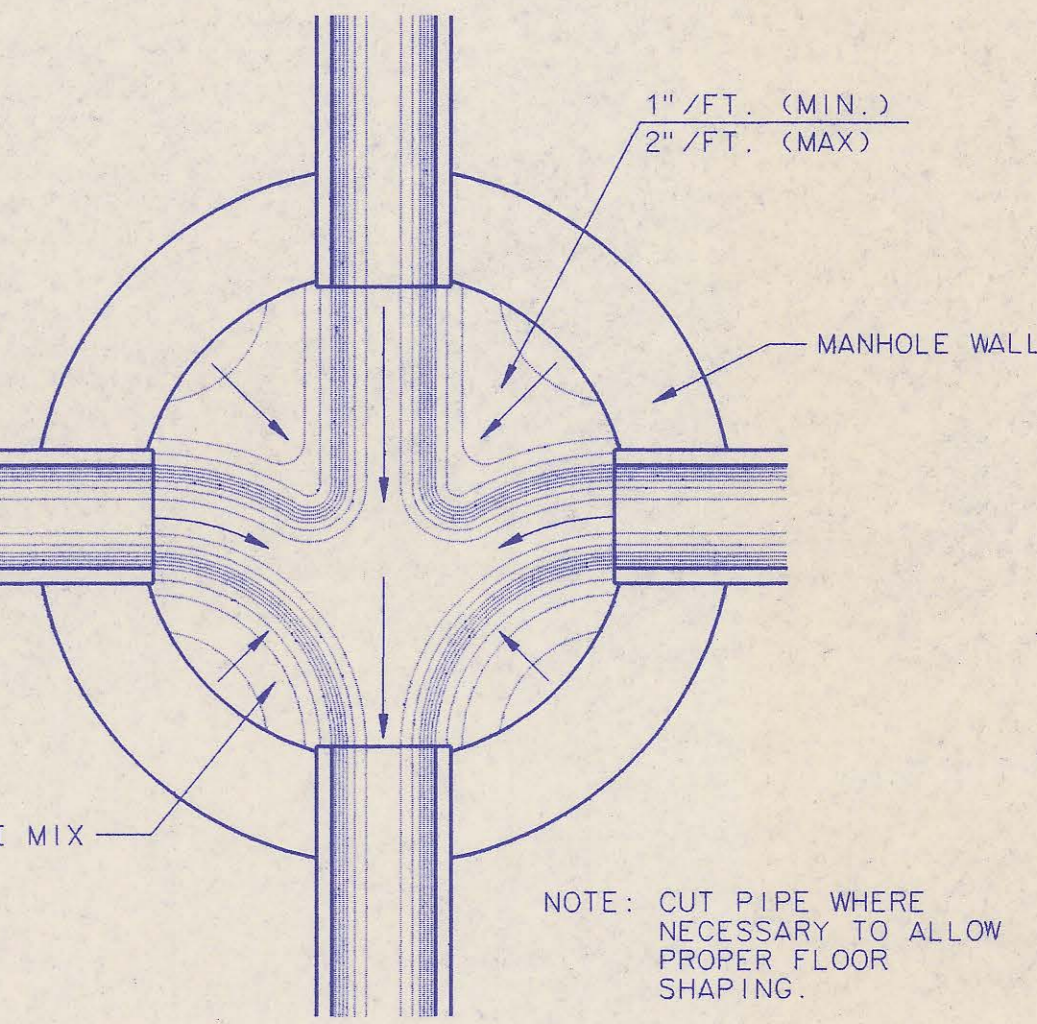
SECTION X (TYPICAL)



SHALLOW MANHOLE TYPE "D"



SECTION Y



TYPICAL MANHOLE FLOOR SHAPPING

CAST-IN-PLACE MANHOLE NOTES

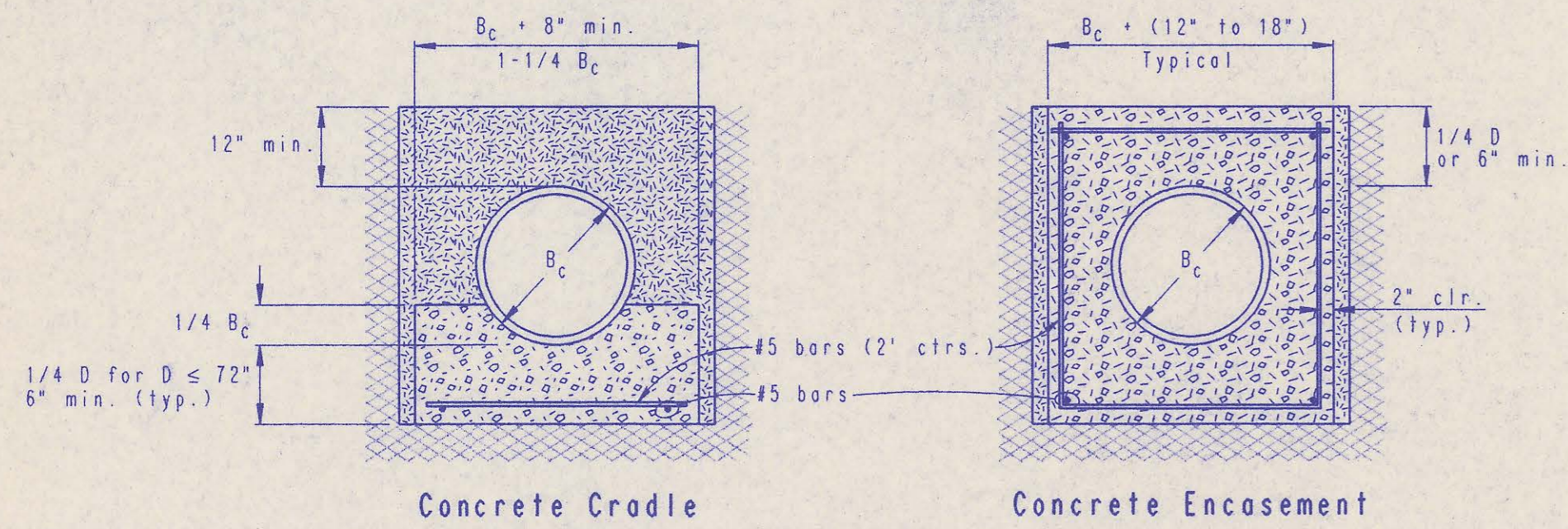
1. IF, IN THE OPINION OF THE ENGINEER, THE MANHOLE SUBGRADE APPEARS UNSTABLE, THE CONTRACTOR WILL HAVE THE OPTION TO COMPACT SUBGRADE AS SHOWN OR INCREASE THE THICKNESS OF THE MANHOLE BASE AS DIRECTED BY THE ENGINEER.
2. STEEL REINFORCING WILL BE REQUIRED IN ALL MANHOLE BASES.
3. WHEN OPENINGS ARE CUT IN MANHOLE WALLS FOR PIPE, THE PIPE OR PIPE CONNECTOR SHALL BE GROUTED IN PLACE WITH HYDRAULIC CEMENT. EXTERIOR OF COMPLETED CONNECTION SHALL BE SEALED WITH APPROVED COATINGS.
4. CAST-IN-PLACE CIRCULAR CONCRETE MANHOLES ARE TO BE CONSTRUCTED ONLY IN LOCATIONS WHERE IT IS OBVIOUS THAT ANY ADJUSTMENT OF THE MANHOLE TOP ELEVATIONS WHICH MAY BE NECESSARY WILL NOT REQUIRE MODIFICATION OF THE CONCRETE BARREL.
5. APPROVED FLEXIBLE WATERSTOP GASKETS WHICH MEET OR EXCEED THE TEST REQUIREMENTS OF ASTM C-923 SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN ABS COMPOSITE PIPE OR PVC PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER EXTENDING FROM MANHOLES SHALL BE SUPPORTED WITH CONCRETE ENCASUREMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL.
6. THE MANHOLE FRAME SHALL BE SEATED ON AN APPROVED BUTYL-RUBBER SEALANT TO PROVIDE A WATER-TIGHT SEAL BETWEEN THE MANHOLE ADJUSTMENT RING OR BRICK MASONRY COLLAR AND THE MANHOLE FRAME.
7. GASKETED PIPE CAPS SHALL BE PROVIDED BY THE PIPE SUPPLIER. GROUTED OR CEMENTED CAPS WILL NOT BE ACCEPTED.
8. CONCRETE FOR MANHOLE BASES SHALL BE CLASS I AS DESCRIBED IN THE SPECIFICATIONS.
9. MANHOLES WITH PIPE SIZES LARGER THAN 15" SHALL HAVE 5" INSIDE DIAMETER.

3	All Manholes Self-sealing/ MH Cover	RJ	1/25/93
2	Modified Pipe connection note and MH Note 3	RJ	6/01/92
1	Manhole Frame and Cover Note 1	RJ	7/16/91
No.	Revision	By	Date

CAST-IN-PLACE MANHOLE DETAILS

ADOPTED AS STANDARD DESIGN SEPTEMBER, 1989
BY
SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES
DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER

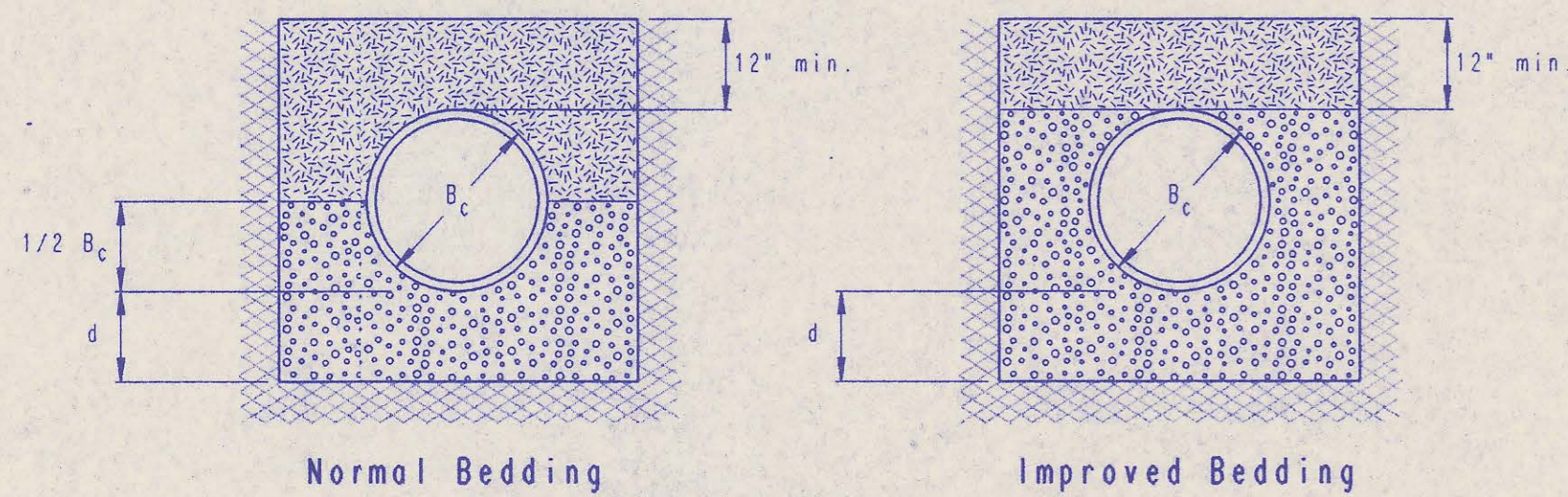
PLAN
 CHECKED
 BY
 DATE



CLASS A

- B_c = Outside Pipe Diameter
- H = Backfill from Top of Pipe to Existing Ground
- D = Inside Pipe Diameter
- d = Depth of Bedding Material Below Pipe
- [Symbol] = Granular Bedding Material or Sand-Gravel Bedding
- [Symbol] = Compacted Embedment
- [Symbol] = Concrete (Class III)

Depth of Bedding Material Below Pipe		
D	d(min) Soil	d(min) Rock
27" & smaller	4"	6"
30" to 60"	5"	9"
66" & larger	6"	12"



CLASS B

Granular Bedding Material shall be an approved material consisting of durable crushed rock conforming with the requirements of the latest revision of ASTM C-33 Size No. 67 (3/4" to No. 4); to be placed in not more than 6" layers and compacted by slicing with a shovel or vibrating. Soundness, abrasion, and absorption limits shall be as required for coarse aggregates in Section 03010-Concrete Work in the specifications.

Sand-Gravel Bedding Material - sand-gravel mix meeting Type UD-1 of the 1990 Kansas Standard Specifications for State Road and Bridge Construction.

Compacted Embedment shall be an approved sand material free from debris, organic material, and stones with 100% passing the 3/4" sieve to be placed in uniform layers not more than 6" thick and compacted to 90 percent maximum density as determined by ASTM D1557. Granular Bedding Material may be substituted for all or part of Compacted Embedment Materials.

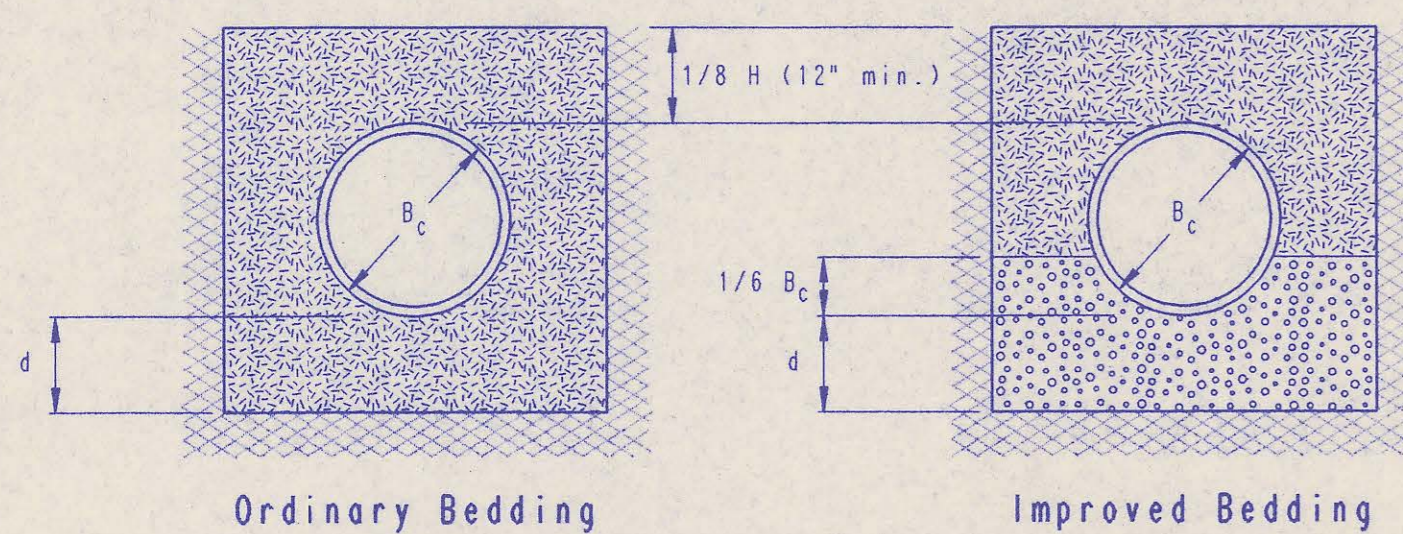
Class A "Concrete Cradle" and/or Class A "Concrete Encasement" is not required unless specified on the plans. However, where unexpected trench conditions exist or improper trenching is performed Class A Bedding may be required as determined by the Engineer.

Class B Bedding shall be used for all flexible pipe.

- a. Class B Normal Bedding shall be used for PVC Pipe unless wet conditions are encountered.
- b. Class B Improved Bedding shall be used for other flexible pipe, and for PVC pipe in wet conditions.

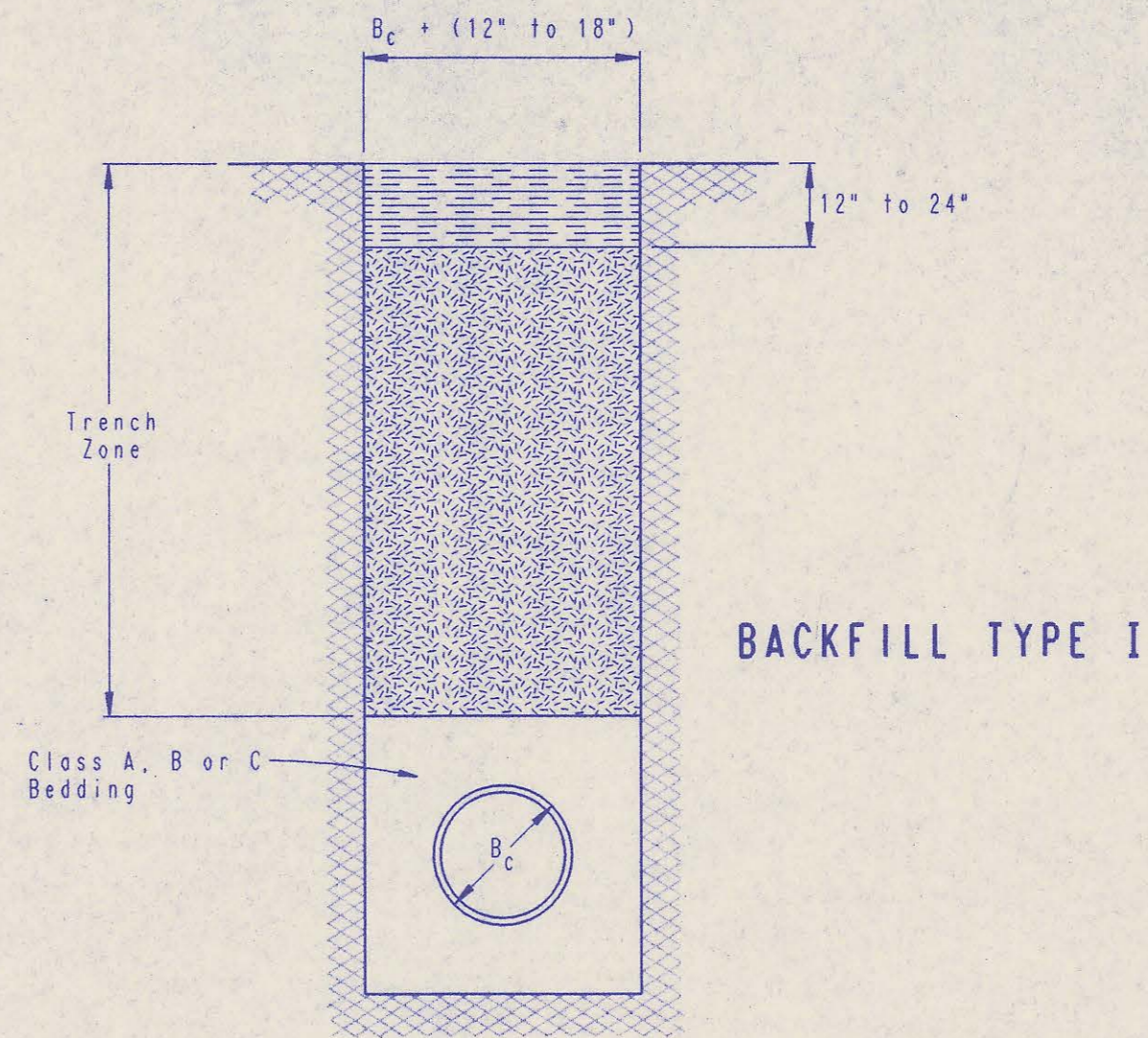
Class C Bedding shall be used for all rigid pipe.

- a. Class C Ordinary Bedding shall be used for all rigid pipe unless wet conditions are encountered.
- b. Class C Improved Bedding shall be used for wet conditions existing in the trench, as directed by the Engineer, at no additional cost to the Owner. The dimensions shall be equal to that required for "rock" excavation (see specifications).



CLASS C

PIPE ZONE BACKFILLING



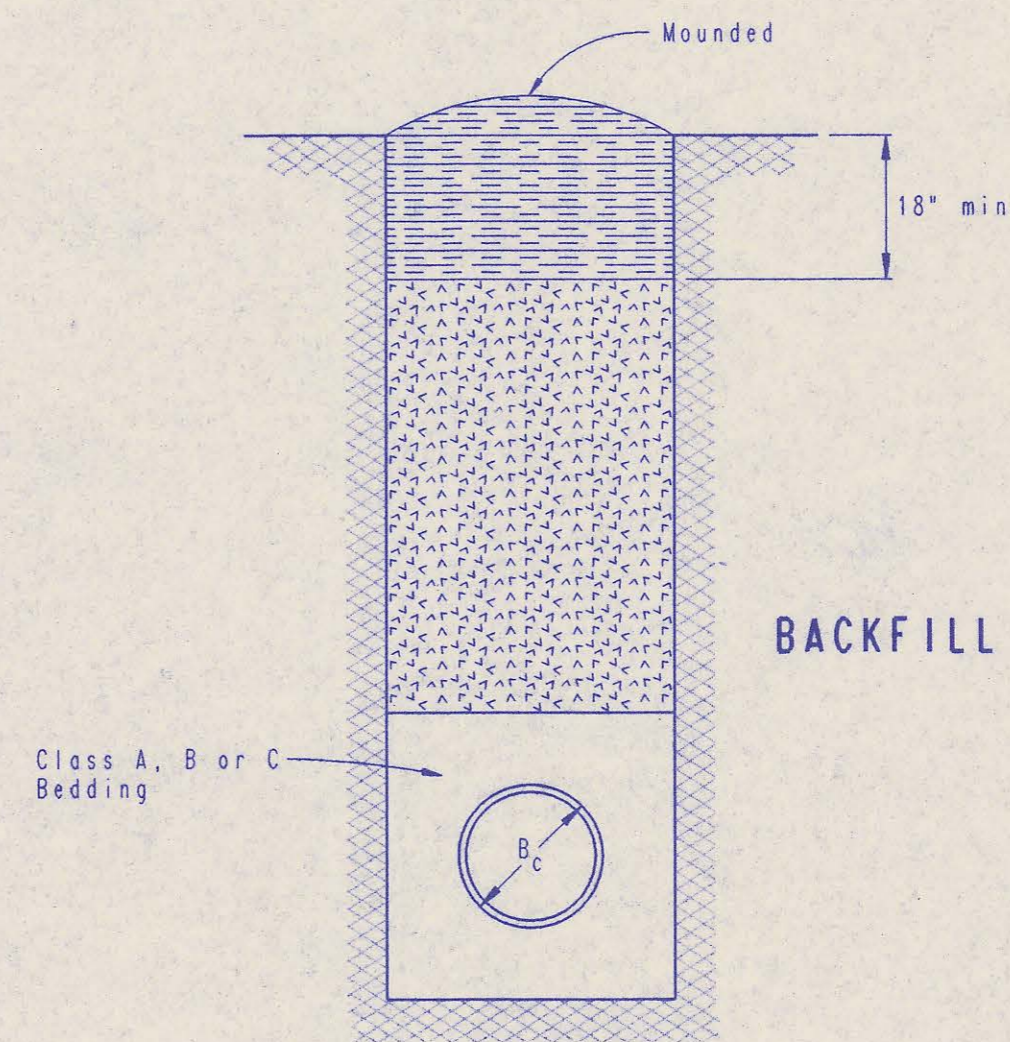
BACKFILL TYPE I

- B_c = Outside Pipe Diameter
- [Symbol] = Compacted Granular Backfill
- [Symbol] = Uncompacted Earth Backfill
- [Symbol] = Compacted Earth Backfill

Compacted Granular Backfill material shall be an approved sand material free from debris, organic material and stones with 100% passing the 3/4" sieve and not more than 15% passing a No. 200 sieve; to be jetted and mechanically vibrated into place and compacted to 90% density as determined by ASTM D1557.

Uncompacted Earth Backfill material may be natural soil free from large clods or stones, brush, roots more than 2 inches in diameter, debris, and junk. Flooding with water shall be provided as directed by the Engineer.

Compacted Earth Backfill shall consist of material existing prior to trenching or selected material as directed by the Engineer, and shall be compacted to 90% density as determined by ASTM D1557.



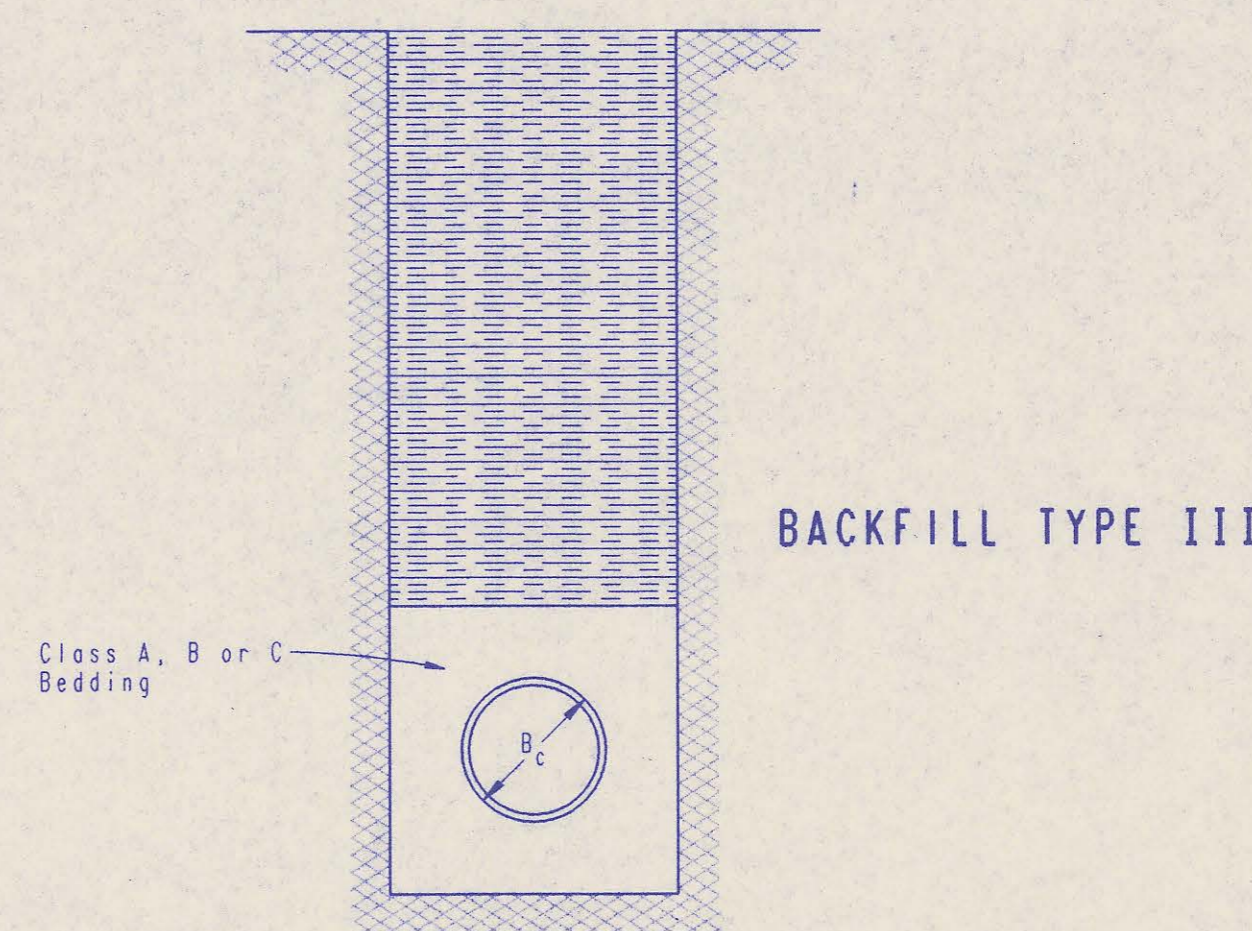
BACKFILL TYPE II

Backfill: Backfill material and compaction requirements shall conform to either Type I, Type II or Type III as specified in the plans. One years maintenance will be required on all backfill.

Backfilling Through Rock: Backfilling through rock shall be performed as specified in the paragraph Backfill above, except that the Pipe Zone is increased to provide eighteen (18) inches of cover over the pipe. When approved by the Engineer the remainder of the backfill may be excavated rock provided the excavated rock has been broken up so that earth and rock will thoroughly mix and not result in voids around the larger pieces of rock. Any excess rock remaining after the trench has been backfilled shall be removed or wasted as directed by the Engineer.

Backfilling Under Pavement: Backfilling under existing or proposed pavement shall be performed as Backfill Type I to a level of two (2) feet from the bottom of the pavement. The remainder of the trench shall be backfilled with selected material, sufficiently damp to be properly compacted in layers not exceeding six (6) inches in depth, compaction shall be performed with mechanical tampers and continued until a relative density of 95 percent of modified density, in conformance with ASTM D1557 is attained.

Backfilling Under Gravel Streets: Where the trench crosses or is in existing gravel surfaced streets, the backfill shall be compacted as provided in the paragraph "Backfilling Under Pavement".



BACKFILL TYPE III

TRENCH ZONE BACKFILLING

No.	Revision	By	Date
BACKFILL DETAILS ADOPTED AS STANDARD DESIGN SEPTEMBER, 1989 BY SEDGWICK COUNTY BUREAU OF PUBLIC SERVICES DAVID C. SPEARS, P.E. DIRECTOR, BUREAU OF PUBLIC SERVICES/COUNTY ENGINEER			